



U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

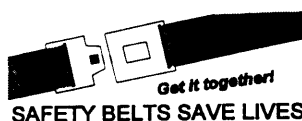
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Division of Arvin/Calspan
[REDACTED]

CALSPAN ON-SITE AIR BAG DEPLOYMENT INVESTIGATION

CALSPAN CASE NO. 91-08

VEHICLE - 1991 FORD TAURUS

LOCATION - [REDACTED], KY

ACCIDENT DATE - [REDACTED], 1991

Contract No. DTNH22-87-C-27169

Prepared for:

U.S. Department of Transportation
National Highway Traffic Safety Administration
Washington, D.C. 20590

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TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 91-8		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Calspan On-Site Air Bag Deployment Investigation Vehicle - 1991 Ford Taurus Location - [REDACTED] KY				5. Report Date [REDACTED] 1992	
				6. Performing Organization Code	
7. Author(s) Accident Research Group				8. Performing Organization Report No.	
9. Performing Organization Name and Address Transportation Sciences Center Accident Research Group Division of Arvin/Calspan P.O. Box 400, Buffalo, NY 14225				10. Work Unit No. [REDACTED]	
				11. Contract or Grant No. DTNH22-87-C-27169	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Washington, D.C. 20590				13. Type of Report and Period Covered Technical Report Accident Date [REDACTED]/91	
				14. Sponsoring Agency Code	
15. Supplementary Notes On-site investigation of an air bag deployment crash that involved a 1991 Ford Taurus. The 35 year old female driver was wearing the active belt system improperly and impacted the left A-pillar, sustaining fatal head injuries.					
<p>16. Abstract This report focuses on a 1991 Ford Taurus that rotated in a clockwise direction and impacted a W-beam guardrail with its frontal area. The crash resulted in a sufficient longitudinal deceleration which closed the crash sensors and deployed the vehicle's driver air bag system. Damage to the vehicle was minimal (2" of residual bumper crush); however, guardrail damage was extensive with 28.5" of crush to the strong post system.</p> <p>The driver of the Ford Taurus was a petite 35 year old female who was wearing the 3-point lap and shoulder belt improperly with the shoulder belt webbing positioned under her left arm. She was slightly out of position to her left at impact due to the pre-crash CW rotation of the vehicle. At impact, she initiated a forward and lateral trajectory to her left in response to the 11 o'clock impact force. As the vehicle engaged with the guardrail, the vehicle rotated rapidly in a CW direction, exposing the left A-pillar to the driver's head. The left side of her face (adjacent to the eye) impacted the mid left A-pillar which resulted in fatal head injuries. Faint tissue transfers were noted to the contacted area. The driver also sustained a facial contusion and abrasion from left A-pillar contact. She also sustained contusions of both breasts from her involvement with the air bag.</p> <p>The five passengers within the vehicle were asleep at the time of the crash. Several of them sustained minor severity injuries. The vehicle subsequently crossed the roadway and impacted the guardrail on the left side of the roadway with the right rear corner area of the vehicle. Damage to the vehicle and guardrail was minor.</p>					
17. Key Words Pre-crash clockwise yaw Sufficient longitudinal deceleration Air bag deployment A-pillar head impact			18. Distribution Statement General Public		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 84	
				22. Price	

TABLE OF CONTENTS

	<u>Page No.</u>
Summary	1
Accident Schematic	3
Accident Data	5
Ambience	5
Highway	5
Traffic Controls	6
Vehicle	6
Vehicle Damage	7
Collision Sequence	8
Human Factors/Occupant Data	11
Air Bag Driver Injuries	11
Air Bag Driver Kinematics	12
Passenger Data	12
Police Photographs	16
Selected Prints	24
Slide Index	41
Appendix A: Police Accident Report	43
Appendix B: Air Bag Supplement	46
Appendix C: NASS Vehicle Forms	53
Appendix D: NASS Occupant Forms	77

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The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the National Highway Traffic Safety Administration.

The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points are coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.

CALSPAN ON-SITE AIR BAG DEPLOYMENT INVESTIGATION

CALSPAN CASE NO. 91-8

FLEET - 1991 FORD TAURUS
LOCATION - [REDACTED], KY

SUMMARY

This single vehicle crash occurred on a rural interstate roadway on [REDACTED] 1991 at 0345 hours. At the time of the early morning crash, the concrete road surface was dry and visibility was limited due to patchy fog. The involved vehicle was a rental 1991 Ford Taurus, 4 dr. sedan, that was equipped with a driver air bag system. The vehicle was occupied by a 35 year old female driver, an 11 year old female seated in the center front, a 28 year old female in the right front, a 14 year old female in the left rear, an 8 year old male lying on the rear floor area, and a 38 year old male in the right rear area. All passengers within the vehicle were reportedly asleep as the driver was traveling eastbound on the interstate roadway. Based on physical evidence that was observed in the police photographs (yaw marks), the vehicle was traveling in the left (inboard) travel lane. The driver of the Taurus apparently swerved for an unknown reason and braked which resulted in a clockwise (CW) yaw. The Ford Taurus rotated approximately 20-25° in a CW direction as it crossed the outboard travel lane and right paved shoulder.

The frontal area of the vehicle impacted a W-beam guardrail system that was located 10 ft. outboard of the right (south) roadedge. The initial impact force was within the 11 o'clock sector as the vehicle crushed against the guardrail. Maximum front bumper crush was 2" located at the right corner of the bumper. There was no damage to the leading edges of the front fenders or hood face. The guardrail was crushed to a maximum depth of 28.5"; however, the guardrail was previously impacted as red paint transfers were visible within the damaged guardrail area. The impact resulted in a sufficient longitudinal deceleration which deployed the driver air bag system. The Taurus rotated rapidly in a clockwise direction as it engaged with the guardrail.

The vehicle subsequently separated from the guardrail following 23'9" of direct contact with the W-beam. The vehicle traveled backwards across the eastbound travel lanes and impacted the left guardrail that paralleled the north roadedge. The right rear corner area of the vehicle impacted the guardrail resulting in 4" of sheetmetal crush to the rear corner area immediately below the taillamp assembly. The 6 o'clock direction of force impact deformed the guardrail to a maximum depth of 3". The Ford Taurus came to rest with the right rear corner area against the W-beam with the front of the vehicle facing in a westerly direction, opposite to its initial travel direction.

The driver of the vehicle was a 35 year old female, with a reported height of 62" and of a slender build. She was wearing the active belt system; however, she had slipped the shoulder belt under her left arm and therefore was wearing the belt incorrectly. Belt usage was supported by blood stains that were visible on the belt webbing in the area of the latchplate with the system buckled. The driver

SUMMARY (CONT'D.)

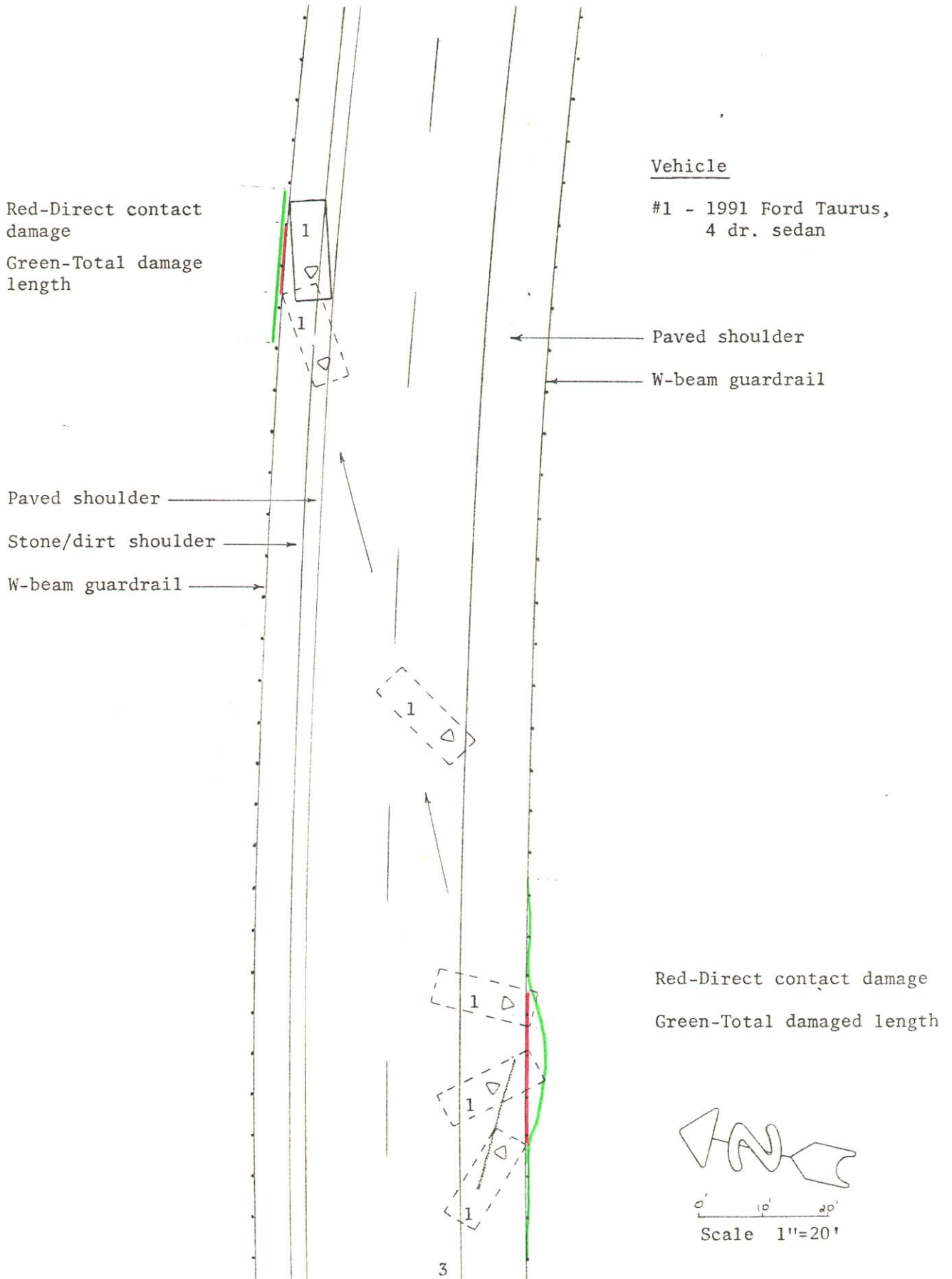
was probably slightly out of position to her left at impact due to the pre-crash CW yaw of the vehicle. At impact, she moved forward and to her left as the vehicle rotated rapidly in a CW direction. Her left knee contacted the knee bolster directly under the steering assembly which produced a scuff mark 14" left of center. Her right knee struck the right side of the bolster which produced a large scuff mark on the rigid bolster 7-8.25" left of center and 14-15.75" below the upper panel. No injury resulted from bolster contact. The driver's left forehead area impacted the mid left upper A-pillar as her head moved forward and left, away from the deploying air bag. The pillar contact resulted in a left temporal cortical contusion of the brain (AIS-3), subdural hemorrhage of the left temporal and parietal regions (AIS-4), and cerebral edema (AIS-3) which shifted the ventricles from left to right. The driver's head probably rotated rearward which allowed her left face to contact the pillar which resulted in an abrasion (AIS-1) located adjacent to the left eye. A faint tissue transfer was noted to the left A-pillar that measured 1.75" vertically x 1.0" wide. Using an 8x magnifying lens, the suspected tissue transfer consisted of irregular shaped fragments that adhered to the textured surface of the pillar covering. Several of the large fragments appeared to be curled. The driver's thoracic area loaded the deployed air bag which resulted in ecchymosis of both breasts (AIS-1). Her loading force was transmitted into the steering assembly which deformed the upper rim 0.75" forward and compressed the energy absorbing column 1.1". The driver rebounded into the left front seatback, then slumped forward where she came to rest in an unconscious state. She bled from the left ear and nose onto the deflated air bag and seat belt webbing.

The center front occupant was reportedly wearing the lap belt loosely around her person. She contacted the center instrument panel and was not injured. The right front adult female passenger was properly restrained by the 3-point belt system and was not injured. The left rear and right rear occupants were seated with their legs resting on the seat cushion facing one another. Both were wearing the available 3 point belt systems improperly with the shoulder belt webbing under their outboard arms. The left rear occupant sustained a forehead laceration (source unknown) and the right rear occupant (driver's husband) sustained a nose bleed. The unrestrained 8 year old male, who was lying on the floor was not injured.

Immediately following the crash, the husband exited the vehicle and assisted the passengers from the vehicle. He returned to the vehicle and found his wife unconscious behind the steering wheel. The husband stopped a passing motorist and removed his wife from the vehicle and paced her in the other vehicle. The passing motorist drove the husband, wife (driver), and the left rear occupant to a local hospital. En route to the hospital, the husband performed CPR on his wife as she had stopped breathing. Following their arrival to the local hospital, the driver was transported by ambulance to a major medical center in ██████████ KY. The estimated length of time for the transport was 40 minutes. The driver was diagnosed as brain dead and was kept on life support for organ donation. She expired at 1657 hours.

ACCIDENT SCHEMATIC

CALSPAN CASE NO. 91-8



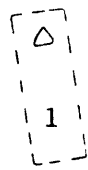
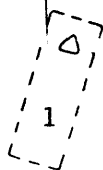
W-beam guardrail

Stone/dirt shoulder

Paved shoulder

W-beam guardrail

Paved shoulder



CALSPAN ON-SITE AIR BAG DEPLOYMENT INVESTIGATION

CALSPAN CASE NO. 91-08

VEHICLE - 1991 FORD TAURUS
LOCATION - [REDACTED], KY

ACCIDENT DATA

Location/Street: Divided interstate roadway
City/Township: [REDACTED], KY
Area/Type: Rural/Undeveloped
Accident Date/Time: [REDACTED], 1991, 0345 hours
Investigating Police Agency: [REDACTED] Police
Accident Type: Car/Guardrail, frontal impact sequence

AMBIENCE

Viewing Conditions: Dark
Weather: Patchy fog
Precipitation: None
Road Surface: Dry

HIGHWAY

Type: Interstate
Number of Lanes: 2
Width: 23'9"
Surface: Concrete, traveled polished
Median: Depressed grass median
Edge: North edge - 2'6" asphalt shoulder, 5'2" stone shoulder
South edge - 9'10" asphalt shoulder
Vertical Alignment: 1% grade, negative to the east
Horizontal Alignment: Slight right curve

HIGHWAY (CONT'D.)

Estimated Coefficient
of Friction: .65

Traffic Density: Light

TRAFFIC CONTROLS

Signals: None

Signs: No pertinent signs

Markings: Broken white lane lines, solid white south edge line, solid yellow north edge line

Speed Limit: 65 mph

VEHICLE

Description: 1991 Ford Taurus, 4 dr. sedan (rental car)

V.I.N.: 1FACP52U2MA (production number deleted)

Color: Light gray

Odometer: 5082.2 miles

Engine: V-6, 3 liter

Transmission: 4-speed automatic overdrive, column mounted transmission selector lever

Steering: Power rack and pinion

Brakes: Power front disc brakes

Padding: Upper, mid and lower instrument panel, soft edged steering wheel rim and air bag module cover, fold-down center armrest, door panels, door armrests, adjustable head restraints

Active Restraints: 3-point lap and shoulder belts in the four outboard seated positions, center front and rear lap belts

Passive Restraints: Supplemental driver air bag system that deployed as a result of the frontal impact sequence with the guardrail

Defects: None

Tow Status: Towed due to vehicle damage

VEHICLE DAMAGE

Exterior:

Primary - The frontal area of the Ford Taurus impacted a W-beam guardrail which resulted in minor damage to the bumper and adjacent components. Maximum crush was 2.0" that was located at the right corner of the bumper. Direct contact damage on the bumper face began 22" left of the vehicle's center line and extended 52.4" to the right corner. The impact compressed both bumper energy absorbing devices (EADs) which resulted in a combined induced and direct contact damage length of 60.25" that involved the entire bumper. The left bumper EAD compressed 0.4" while the right unit compressed 1.6". Both EADs returned to their original pre-crash positions. Crush values were measured at six equally spaced increments across the front bumper and were as follows:
C₁=0", C₂=0", C₃=0", C₄=0.1", C₅=1.0", C₆=2.0".

The front bumper of the Ford Taurus partially overrode the W-beam guardrail which allowed the right front bumper rail and lower radiator support panel to engage with the guardrail. The subsequent contact sequence resulted in minor deformation to the involved components. The partial override also displaced the front bumper and EADs in an upward direction. (Prior to our inspection of the vehicle, the body shop had removed the bumpers and grille assembly from the vehicle. The bumpers were temporarily reattached for our inspection.)

Secondary - The right rear area of the Ford Taurus impacted the median W-beam guardrail as the vehicle rotated across the travel lanes. Direct contact damage on the rear bumper began 17.5" right of center and extended 12.6" to the right rear corner area. Although no residual bumper crush occurred (no EAD compression) as a result of the impact, the right taillamp area of the vehicle engaged with the guardrail resulting in 4" of sheetmetal crush at the right rear corner.

The right rear quarter panel area of the vehicle engaged with the guardrail as the vehicle continued in a rearward direction before coming to rest. Direct contact damage began at the corner area of the sheetmetal and extended forward 23.125", ending 16.75" rearward of the right rear axle position.

CDC:

	<u>Event Number</u>		<u>Object Struck</u>
Primary -	1	11-FDEW-1	W-beam guardrail
Secondary -	2	06-BREE-4	W-beam guardrail

Repair Cost: \$7500.00 (estimated)

VEHICLE DAMAGE (CONT'D.)

Interior:

The interior of the Ford Taurus sustained minor damage that was associated solely with occupant contact. The driver's thoracic area loaded the steering assembly through the air bag and deformed the upper steering wheel rim 0.75" forward. Her loading force was transmitted into the steering column which compressed the energy absorbing steering column 1.1". The driver's involvement with the steering assembly fractured and deformed the right cruise control switches that were located between the upper and lower spokes, adjacent to the air bag module. Her knees contacted the steel knee bolster 7-8.25" and 13.9-15.1" left of center. Although no residual damage occurred to the bolster, scuff marks identified the contact areas. The driver's left facial area impacted the mid left A-pillar. Again, no residual damage occurred to the pillar; however, tissue transfers evidenced the contact area. Blood stains were noted to the face of the deployed air bag and on the active belt webbing in the area of the latchplate.

The center front occupant's extremities contacted the center instrument panel area, depositing fabric transfers to the contacted components. Her left arm contacted the upper instrument panel 4.25-6.75" left of center. Her right arm possibly contacted the upper panel at the rear defroster switch 3.75-4.5" left of center. A scuff mark evidenced the contact area and was located 2.5-3.1" below the top surface of the instrument panel. The center front occupant's knees contacted the mid and lower instrument panel in the areas of the air vents and cup holder. Fabric transfers extended 0-6.75" right of center and 8.75-12.75" below the top surface of the instrument panel.

COLLISION SEQUENCE

Pre-Crash:

The driver and her family were en route to their residence in [REDACTED] and were traveling in a rented 1991 Ford Taurus. They had departed the [REDACTED] KY area approximately 1/2 hour prior to the crash. The driver had reportedly slept for 4-5 hours prior to the drive start. The vehicle was traveling in an easterly direction on the inboard (left) travel lane at an unknown, but reasonable rate of speed. The vehicle's travel speed was probably less than the 65 mph posted speed limit due to patchy fog. The driver was initially following a large truck due to poor visibility caused by the fog.

The five passengers within the vehicle had fallen asleep in their respective positions and therefore were not aware of the pre-crash events. For an unknown reason, the driver swerved the vehicle to the right and braked. The Ford Taurus

COLLISION SEQUENCE (CONT'D.)

Pre-Crash
(Cont'd.):

broke traction on the dry concrete road surface and initiated a clockwise (CW) yaw. The Taurus crossed into the right travel lane and departed the right (south) roadedge onto the 9'10" wide asphalt shoulder. The vehicle continued to yaw in a CW direction as it proceeded on a trajectory toward the W-beam guardrail system that bordered the south shoulder.

Crash:

The frontal area of the Ford Taurus impacted the W-beam guardrail as the vehicle yawed approximately 20-25° in a clockwise direction. The yaw angle was estimated from tire marks that were visible in the police photographs. Initial contact involved the right corner area of the front bumper and the W-beam rail of the guardrail system. Due to pre-crash CW yaw and the initial right corner impact, the Ford Taurus rotated rapidly in a CW direction as the frontal area of the vehicle engaged with the guardrail. The impact compressed the bumper energy absorbing devices (EADs) and crushed the front bumper to a maximum depth of 2.0". The vehicle initially contacted the guardrail resulting in an 11 o'clock impact force; however, during its engagement and rapid CW rotation against the guardrail, the force angle traveled through the 10 o'clock sector and into the 9 o'clock sector as the vehicle separated from the guardrail. As a result of the impact, the vehicle underwent a sufficient longitudinal deceleration which closed the crash sensors and deployed the driver's air bag system.

The frontal area of the Ford Taurus directly contacted 23'9" of the W-beam guardrail system. The force of the impact deformed 59'5" of the guardrail to a maximum depth of 28.5" and displaced six guardrail posts. Post displacement ranged from 1-14" of movement. Within the area of the deformed guardrail, red paint transfers were visible on the W-beam and red plastic debris was found in the area, indicating that this section of guardrail had sustained an impact prior to this crash. The extent of damage to the guardrail system from the previous impact was unknown.

The Ford Taurus separated from the initial guardrail impact leading with the left rear corner area of the vehicle. The Taurus continued to rotate slightly in a CW direction as its center of gravity continued in an easterly direction. The vehicle traversed the travel lanes and departed the north roadedge in a rearward orientation. The right rear corner area of the vehicle subsequently impacted the median guardrail 115' east of its separation point from the previous guardrail impact. The subsequent impact resulted in a 6 o'clock impact force to the vehicle and crushed the sheetmetal to a depth of 4". There was no displacement of the rear bumper or bumper energy absorbing

COLLISION SEQUENCE (CONT'D.)

Crash
(Cont'd.): devices. The impact crushed the W-beam of the guardrail system to a maximum depth of 3". The vehicle remained engaged with the guardrail for 10'9" before coming to rest, facing in a westerly direction.

Post-Crash:

Final Rest - The Ford Taurus came to rest on the north shoulder with the left rear quarter panel of the vehicle engaged with the W-beam guardrail. At rest, the vehicle was facing in a westerly direction with its left side tires on the paved portion of the shoulder.

Driver/Passenger
Activities - The driver of the vehicle was unconscious and was slumped forward against the steering assembly immediately following the crash. The husband, who was seated in the right rear position, exited the vehicle from the left rear door and assisted his children from the vehicle. The right front occupant exited the vehicle from the right door and assisted the driver's husband in placing the children over the guardrail away from the vehicle and roadway. The husband checked the condition of the driver and found her to be seriously injured with respiratory difficulties. He waved down a passing motorist who agreed to transport the injured driver to a local hospital. The husband carried the driver from the Ford Taurus and placed her in the passing motorist's vehicle along with his 14 year old daughter (left rear occupant). The husband accompanied the injured to the hospital. While en route to the hospital, the driver reportedly had stopped breathing and the husband administered CPR.

Following arrival to the local hospital, the driver was evaluated and was diagnosed as brain dead. She was subsequently transported by ambulance to a major medical center in ██████████, KY where she was kept on life support with periodic evaluations. The driver, who was an organ donor, expired at 1657 hours on the day of the crash.

Police
Activities - ██████████ Police arrived on-scene following the departure of the driver and her husband. The officer called for an ambulance to transport the remaining occupants to the local hospital. He photographed the vehicle and the scene and requested towing assistance.

Scene
Clearance - The vehicle was towed from the scene by a local towing service. The officer departed from the cleared scene at 0458 hours.

HUMAN FACTORS/OCCUPANT DATA

Driver:	35 year old female
Height:	62"
Weight:	110-120 lbs. (estimated)
Occupation:	Housewife
Active Restraint System Usage:	3-point lap and shoulder belt, worn improperly with shoulder belt tucked under left arm
Usage Source:	Police report, husband's statement, vehicle inspection
Eyeglasses:	None worn
Vehicle Familiarity:	First trip in vehicle (rental car)
Route Familiarity:	Unknown
Trip Plan:	En route to residence in [REDACTED], FL
Manner of Leaving Scene:	Private vehicle (passing motorist) to a local hospital
Type of Medical Treatment:	Initially transported to a local hospital then transferred by ambulance to a major medical center where she was diagnosed as brain dead

DRIVER INJURIES

<u>Injury</u>	<u>Severity (OIC/AIS)</u>	<u>Source</u>
Thin subdural hemorrhage of the left temporal and parietal regions	Severe (HLUB-4)	Left A-pillar
Left temporal cortical contusion	Serious (HLCB-3)	Left A-pillar
Cerebral edema in the left hemisphere with ventricular shift to the right	Serious (HLUB-3)	Left A-pillar
Contusion of the left forehead	Minor (FSCI-1)	Left A-pillar
Abrasion of the left face adjacent to the eye	Minor (FLAI-1)	Left A-pillar
Left periorbital ecchymosis	Minor (FLCO-1)	Left A-pillar
Ecchymosis of both breasts	Minor (CLCI-1, CRCI-1)	Air bag

DRIVER KINEMATICS

The driver of the 1991 Ford Taurus was probably in a normal upright driving position pre-crash with her seat adjusted to a forward setting. She was wearing the active 3-point lap and shoulder belt system incorrectly with the shoulder belt positioned under her left arm, greatly reducing the effectiveness of the belt system. Blood stains on the belt webbing in the area of the latchplate (when buckled) supported belt usage.

At impact, the driver was probably out of position to her left due to the pre-crash clockwise rotation of the vehicle. In response to the 11 o'clock impact force, the driver moved forward and to her left as the vehicle began to rotate out from under her. Her knees contacted the steel knee bolster directly under the steering column and at the right side of the bolster. Scuff marks evidenced the contacted areas. No injury was noted on the medical records from the bolster contact. Due to the driver's forward seated position, her trajectory, and improper belt usage, her torso engaged with the deploying air bag and steering assembly. Her loading force was transmitted through the bag which resulted in 0.75" of upper steering wheel rim deformation and 1.1" of compression to the energy absorbing steering column. The driver sustained bilateral breast contusions that probably resulted from contact with the deploying air bag. There were no underlying thoracic injuries or rib fractures.

The left side of the driver's forehead and facial area impacted the mid left upper A-pillar as she moved forward and to her left, outboard of the inflation area of the air bag. The head impact resulted in an abrasion of the left face adjacent to the eye, a contusion of the left forehead, left periorbital ecchymosis, a left temporal cortical contusion, a thin subdural hemorrhage of the left temporal and parietal regions, and cerebral edema in the left hemisphere with ventricular shift to the right. Faint tissue transfers evidenced the contact area to the plastic covering of the A-pillar. The transfer consisted of irregularly shaped fragments with curled edges that were embedded into the textured surface.

The driver rebounded into the left front seatback then slumped forward where she came to rest. The head injuries produced bleeding from her left ear and nose. Blood stains were visible on the air bag and the shoulder belt webbing in the vicinity of the latchplate.

PASSENGER DATA

Center Front Occupant:	11 year old female
Height:	Unknown
Weight:	Unknown
Active Restraint System Usage:	Lap belt
Usage Source:	Police

CENTER FRONT OCCUPANT INJURIES

<u>Injury</u>	<u>Severity (OIC/AIS)</u>	<u>Source</u>
None reported	N/A	N/A

CENTER FRONT OCCUPANT KINEMATICS

The center front occupant was reportedly wearing the active lap belt loose around her pelvic region. She was asleep at the time of the crash and was probably slumped to her right. At impact she moved forward and to her left and contacted the instrument panel with her upper and lower extremities which did not result in injury.

PASSENGER DATA (CONT'D.)

Right Front Occupant:	28 year old female
Height:	Unknown
Weight:	Unknown
Active Restraint System Usage:	3-point lap and shoulder belt
Usage Source:	Police

RIGHT FRONT OCCUPANT INJURIES

<u>Injury</u>	<u>Severity</u>	<u>Source</u>
Not injured	N/A	N/A

RIGHT FRONT OCCUPANT KINEMATICS

The right front occupant was fully restrained by the active 3-point lap and shoulder belt system. She was also asleep at the time of the crash and was probably slumped to her right against the right door. At impact, she initiated a forward trajectory and loaded the active belt system which prevented her from contact with interior components and injury.

PASSENGER DATA (CONT'D.)

Left Rear Occupant:	14 year old female
Height:	Unknown
Weight:	95 lbs.
Active Restraint System Usage:	3-point lap and shoulder belt, worn incorrectly
Usage Source:	Police

LEFT REAR OCCUPANT INJURIES

<u>Injury</u>	<u>Severity (OIC/AIS)</u>	<u>Source</u>
Forehead laceration	Minor (FSLI-1)	Unknown (possible interior loose object)

LEFT REAR OCCUPANT KINEMATICS

The left rear occupant was asleep in the vehicle with her legs extended up onto the seat cushion, toward the right rear occupant. She was wearing the active 3-point lap and shoulder belt system incorrectly with the shoulder belt positioned under her left arm. At impact with the guardrail, she probably moved forward and rotated in a counterclockwise direction. There were no visible contact points from the occupant. She sustained a laceration of the forehead from an unknown source.

PASSENGER DATA (CONT'D.)

Center Rear Occupant:	8 year old male, lying on floor
Height:	Unknown
Weight:	Unknown
Active Restraint System Usage:	None
Usage Source:	Police, vehicle inspection

CENTER REAR OCCUPANT INJURIES

<u>Injury</u>	<u>Severity (OIC/AIS)</u>	<u>Source</u>
Not injured	N/A	N/A

CENTER REAR OCCUPANT KINEMATICS

The 8 year old male was lying across the rear floor area of the vehicle and was asleep at the time of the crash. He probably contacted the front seat back/seat cushion juncture during the crash sequence and was not injured.

PASSENGER DATA (CONT'D.)

Right Rear Occupant:	38 year old male
Height:	67"
Weight:	Unknown
Active Restraint System Usage:	3-point lap and shoulder belt, worn incorrectly
Usage Source:	Police

RIGHT REAR OCCUPANT INJURIES

<u>Injury</u>	<u>Severity (OIC/AIS)</u>	<u>Source</u>
Nose bleed	N/A	Front seat back (Probable)

RIGHT REAR OCCUPANT KINEMATICS

The 38 year old male right rear occupant was asleep in his position with his legs extended across the rear seat cushion. He was wearing the active 3-point belt system incorrectly with the shoulder belt positioned under his right arm. At impact, he probably moved forward and to his left and impacted the front seat back. He sustained a nose bleed that probably resulted from seat back contact.



Pre-Crash Clockwise Yaw Marks From The Ford Taurus.



Deployment Impact Sequence With The W-Beam Guardrail.



Separation Trajectory And Continued Clockwise Rotation Of The Ford Taurus.



Secondary Guardrail Impact And Final Rest Position
Of The Ford Taurus.



Frontal Damage To The Ford Taurus.



Secondary Guardrail Damage To The Right Rear Corner Area.



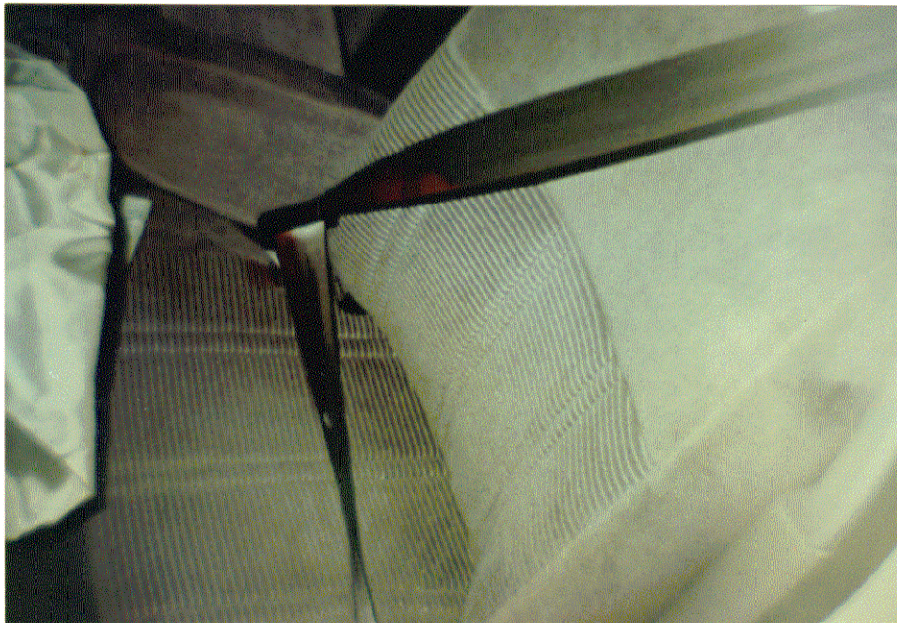
Overall Interior View And Of The Deployed Air Bag And Upper Module Cover Flap.



Closeup View Of The Upper Module Cover Flap.



Perpendicular View Across The Interior Of The Vehicle.



Blood On The Belt Webbing In The Area Of The Latchplate.



Pre-Crash Trajectory Of The Ford Taurus.



Left Front Tire Mark On Asphalt Shoulder.



Beginning Of Direct Contact Damage on Guardrail,
Also Note Unrelated Red Paint Transfers.



Maximum Displacement of Guardrail.



End of Direct Contact Damage.



Longitudinal View Showing The Extent Of Guardrail Displacement.



Vehicle Separates From Guardrail And Crosses Travel Lanes
Rotating In A CCW Direction.



Rotational Trajectory Of Vehicle En Route To Secondary Guardrail Impact.



Secondary Guardrail Impact Damage.



Longitudinal View Of The Guardrail Damage.



Lookback View Of The Ford Taurus' Trajectory.



Frontal View Of The Ford Taurus.



Left Front Three-Quarter View.



Perpendicular View From The Left Front Corner Area.



Secondary Guardrail Impact Damage To The Right Rear Area.



Direct Contact Damage Across The Right Rear Bumper Area.



Damage That Extended Onto The Right Quarter Panel.



Right Front Three-Quarter View.



Perpendicular View From The Right Front Corner Area
Showing The Extent Of Crush.



Overall Interior View From The Right Door Area.



Driver Air Bag.

Driver's Right Knee Contact To
Knee Bolster, Tissue Transfer.



Driver's Left Facial Contact
To Left Upper A-Pillar.





Closeup View Of The Faint Tissue Transfer On Left A-Pillar.



Deformation To The Upper Steering Wheel Rim From Driver Loading.

Driver's Seat And Active
3-Point Restraint System.



Retracted Driver's Active
Belt System.





Blood On The Belt Webbing.



Powder Transfers On Air Bag Module Cover,
Left Lower Corner Of Flap Had Been Cut Away.

Center Front Passenger Contact
To The Center Instrument Panel
Area.



Knee Contacts To The Lower
Instrument Panel Area.





Hand Contact To The Center Upper Instrument Panel, Tissue Transfer.



Overall View Of The Rear Seat Area.

SLIDE INDEX

<u>Slide No(s).</u>	<u>Description</u>
1	Accident schematic
2	Driver injury mannequin
3-4	Pre-crash trajectory of the Ford Taurus
5	Left front tire print
6,7	Front impact damage to the W-beam guardrail
8	Longitudinal view showing the extent of crush to the guardrail
9	Vehicle separates from guardrail and rotates across the travel lanes
10,11	Secondary impact damage to the median guardrail
12	Longitudinal view showing the extent of guardrail damage from the secondary impact
13	Lookback view of the vehicle's trajectory
14	Frontal view of the Ford Taurus
15,16	Longitudinal views of the Ford Taurus
17-19	Direct contact damage across the front bumper
20	Direct contact damage to the right rail from bumper override of the guardrail
21,22	Right front bumper EAD
23	Left front bumper EAD
24	Removed frontal components
25	Left front three-quarter view
26	Perpendicular view showing the extent of bumper crush
27	Left side view
28,29	Left rear three-quarter views
30,31	Subsequent right rear impact damage to the Ford Taurus
32	Closeup view of the rear damage
33	Right rear three-quarter view

SLIDE INDEX (CONT'D.)

<u>Slide No(s).</u>	<u>Description</u>
34	Left rear bumper EAD
35	Right rear bumper EAD
36,37	Extent of guardrail contact damage on the right rear quarter panel
38	Right side view
39,40	Perpendicular views of the right frontal area
41	Right front three-quarter view
42,43	Right front air bag crash sensor
44	Engine compartment
45	Center mounted air bag crash sensor
46	Left air bag crash sensor
47	Instrument panel V.I.N. tag
48	Identification label on the left front door
49	Overall interior view and the deployed driver air bag
50	Closeup view of the driver air bag
51,52	Upper air bag module cover flap
53,54	Perpendicular views of the upper rim showing slight displacement
55	Vehicle's odometer reading
56	Left knee contact to the steering column cover panel
57	Right knee scuff to the knee bolster
58	Trajectory of the driver and contact to the left A-pillar
59	Closeup of the left A-pillar contact from the driver's head
60	View of the driver's seat and active belt webbing
61	Retracted position of the active belt webbing
62	Center front occupant's knee contacts to the lower mid instrument panel
63	Hand/arm contact to the center upper instrument panel
64	Rear seat area



























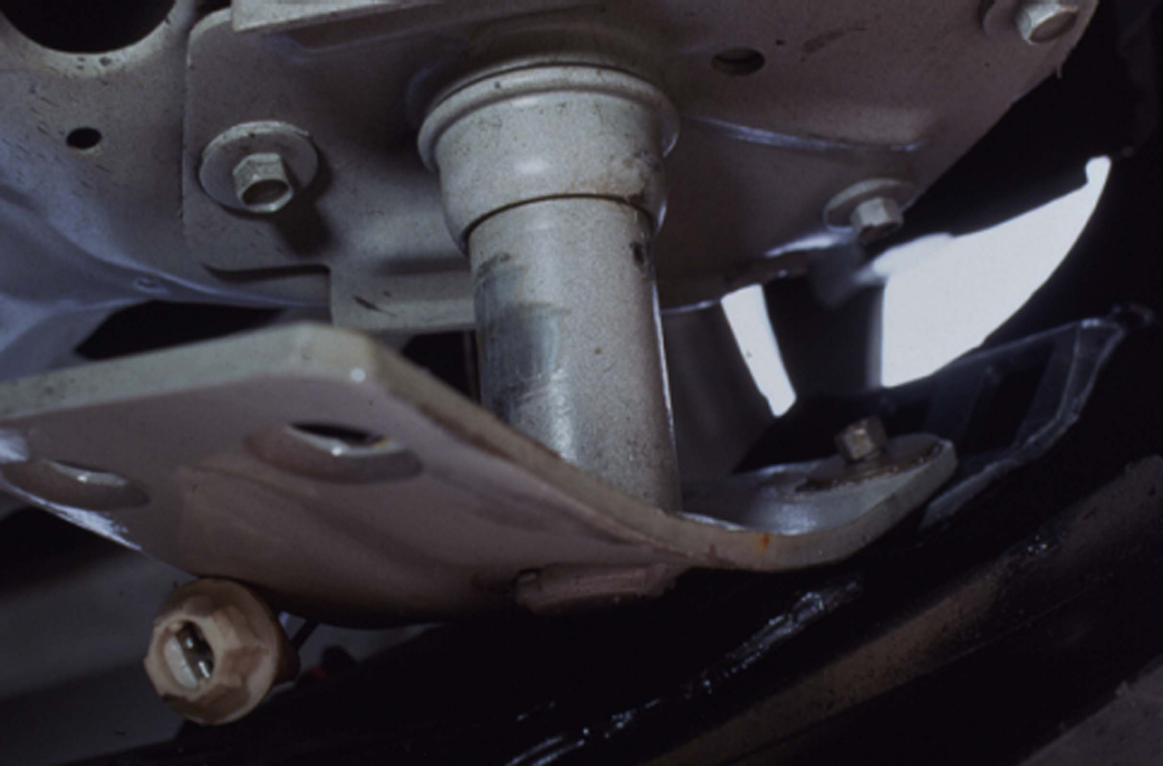






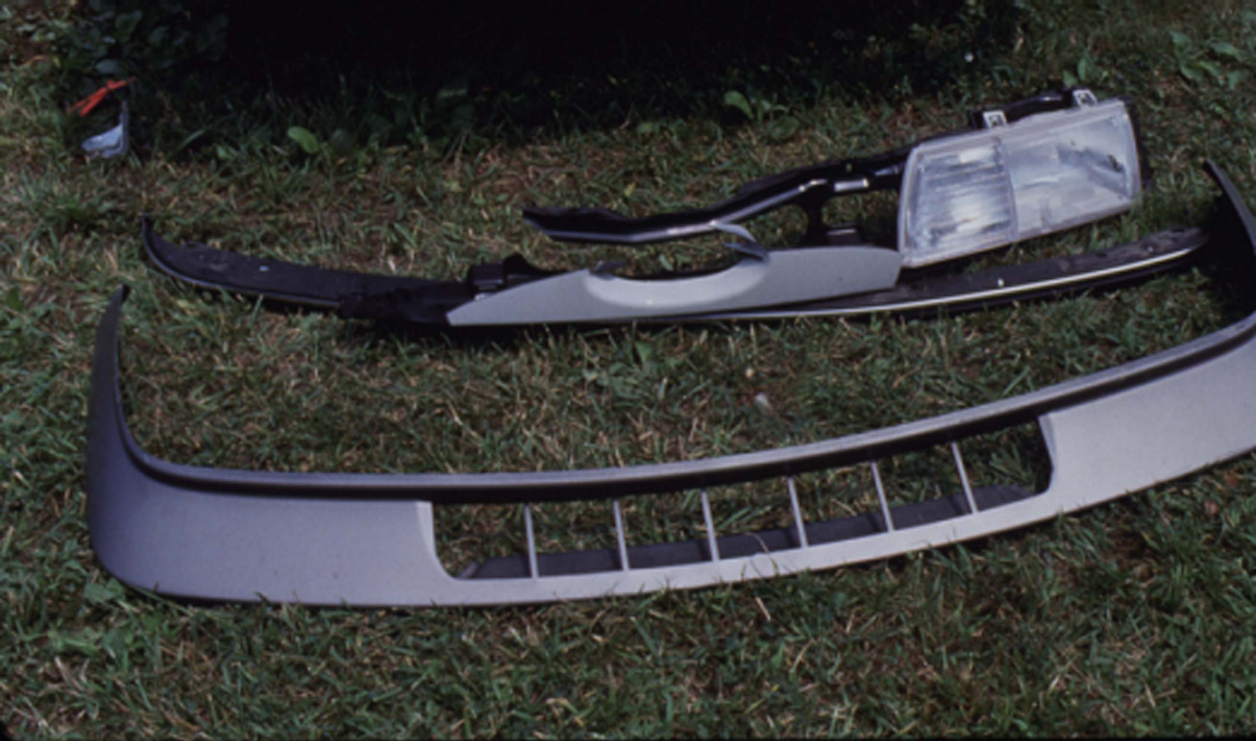








































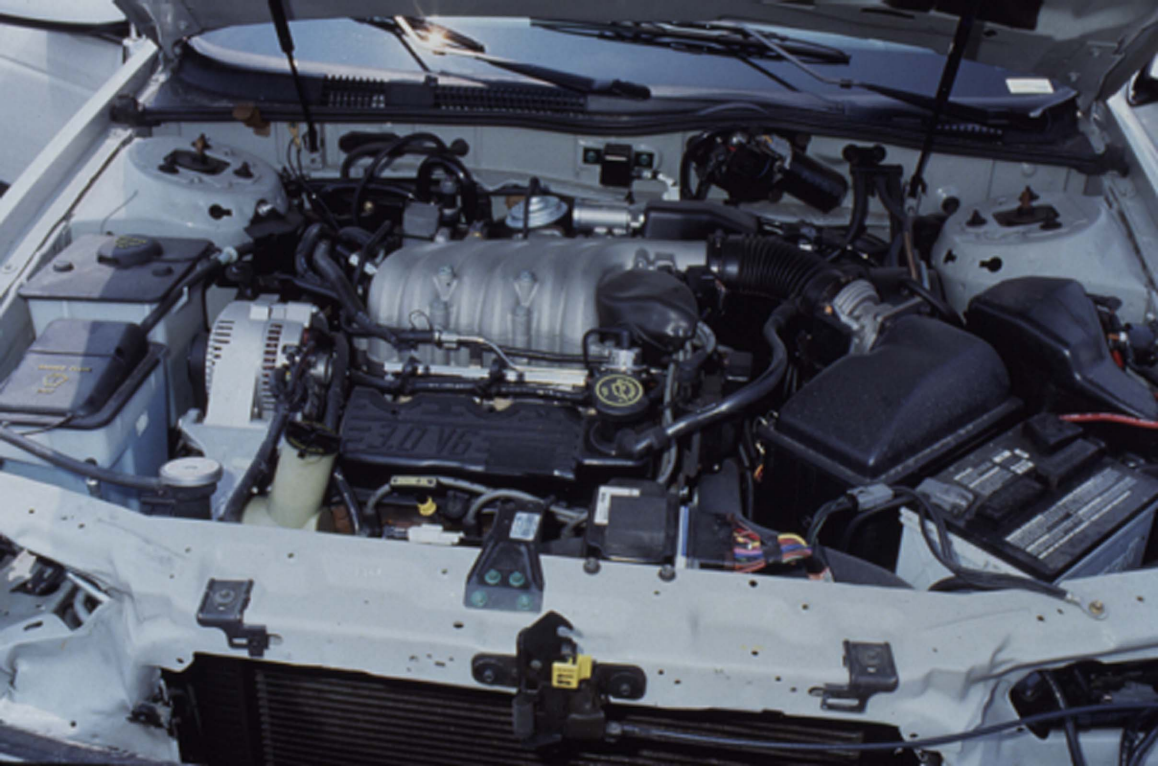
















AIR BAG

T.R.P.

TRP31

Budget

MFD. BY FORD MOTOR CO. IN U.S.A.

DATE: 02/91

FRONT GAW: 2000LB

GWR: 11600KG

REAR GAW: 2000LB

962KG

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR
VEHICLE SAFETY, BUMPER, AND THEFT PREVENTION STANDARDS
IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

VIN: 1F400000000000000

TYPE: PASSENGER



F0316
R0239

Y0

FC4

FC4

OFFER 1000000-00















UNLEADED FUEL ONLY



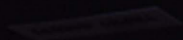
BRAKE



FUEL





















APPENDIX A

Police Accident Report

INVESTIGATING AGENCY: [redacted] Police
KILLED: 1 INJURED: 5 INVESTIGATION COMPLETE: 8 H. & R.: NO DAY: 0345 MILITARY TIME: MO. DAY YEAR: 91
TRAFFICWAY NO OR NAME: 3/10 MILES: N E S W IN TO: COUNTY: [redacted]
INTERSECTION: KY [redacted] BETWEEN STREETS: KY [redacted] ONE WAY: YES (NO) RAMP: YES (NO) FROM: TO: 7100 FT. N E S W: 43.332 SPEED LIMIT: 65
UNIT 1: OPERATORS LIC. NO. [redacted] STATE: FL RESTRICTION: NON-RESTRICTION CODE: 0 COMPLIANCE: YES (XX) NO () NO. OCCUPANTS: 6
UNIT 2: OPERATORS LIC. NO. [redacted] STATE: FL RESTRICTION: NON-RESTRICTION CODE: 0 COMPLIANCE: YES (XX) NO () NO. OCCUPANTS: 6
OPERATOR-LAST NAME: [redacted] FIRST: [redacted] M.I.: [redacted] DATE OF BIRTH: [redacted]-55
STREET NO. & NAME: [redacted] CODE: [redacted]
CITY: [redacted] STATE: [redacted] ZIP CODE: [redacted]
OWNER-LAST NAME: [redacted] FIRST: [redacted]
OWNER-ADDRESS: [redacted]
MOTOR CARRIER: NAME & ADDRESS: NA
VEH. YR. MAKE MODEL TYPE STATE REGISTRATION NO. YEAR: 91 Ford TAU 4d GA [redacted] 91
VEH. INS. CO. [redacted] Insurance ADDRESS: [redacted]
FIRE YES (X) NO () OVERTURNED YES (X) NO () EST TRAVEL SPEED BETWEEN [redacted] AND [redacted] SUBCOMPACT () FULL SIZE () COMPACT () INTERMED. (X)
VEH. ID NUMBER: 1FACP52U2MA [redacted]
HAZARDOUS YES () NO (X) CARGO CODE: NA TYPE CARGO: NA NUMBER OF TRAILERS: NA
TRUCK LENGTH FT. NA IN. [redacted] WIDTH FT. [redacted] IN. [redacted] SINGLE UNIT () NO. COMBINATION () AXLES: NA
DAMAGED UNIT NUMBER ONE: [redacted] DAMAGE TO TRUCK NO. 1: [redacted]
DAMAGED UNIT NUMBER TWO: [redacted] DAMAGE TO TRUCK NO. 2: [redacted]
INDICATE NORTH BY ARROW: [redacted]
ACCIDENT DESCRIPTION: Unit 1 was eastbound on [redacted]. Lost control ran off the right side of the roadway struck a guardrail Unit 1 then spun clockwise across the roadway and impacted the guardrail on the north side of the roadway.
7-15 Subject became disoriented in the fog.

PROPERTY DAMAGE-OTHER THAN VEHICLES: Guardrail OWNER ADDRESS: Kentucky [redacted]
T AID GIVEN BY: [redacted] INJURED OR DECEASED REMOVED BY: [redacted] REMOVED TO: [redacted] Hospital
YES (XX) OPER. #1 (XX) PED. () TYPE BREATH CHEM. BLOOD TEST (X) DRUG TESTED FOR ALCOHOL (X) TAKEN BY: [redacted] RESULTS: .00%
NO () OPER. #2 () OTHER () TEST URINE () FOR ()
SURVIVORS/WITNESSES/PASSENGERS: ADDRESS IF DECEASED - DATE/TIME
[redacted] Same as above 2 1 1 F 34 1 3 1 1
[redacted] Same as above 2 3 2 M 38 1 3 6 1
[redacted] Same as above 2 3 8 M 8 1 1 5 1
[redacted] Same as above 2 3 8 F 11 1 3 4 1
[redacted] Same as above 2 3 8 F 14 1 2 5 1
ENFORCEMENT CITATION OR CASE NO. KRS NUMBER: OFFENSE: PHOTOS: YES (XX) NO ()
[redacted] NA NA NA
INVESTIGATOR: [redacted] BEAT OR POST NO. TIME NOTIFIED: 0356 TIME ARRIVED: 0358 SCENE CLEARED: 0458 REVIEWED BY: [redacted] PAGE OF PAGES: 1 2

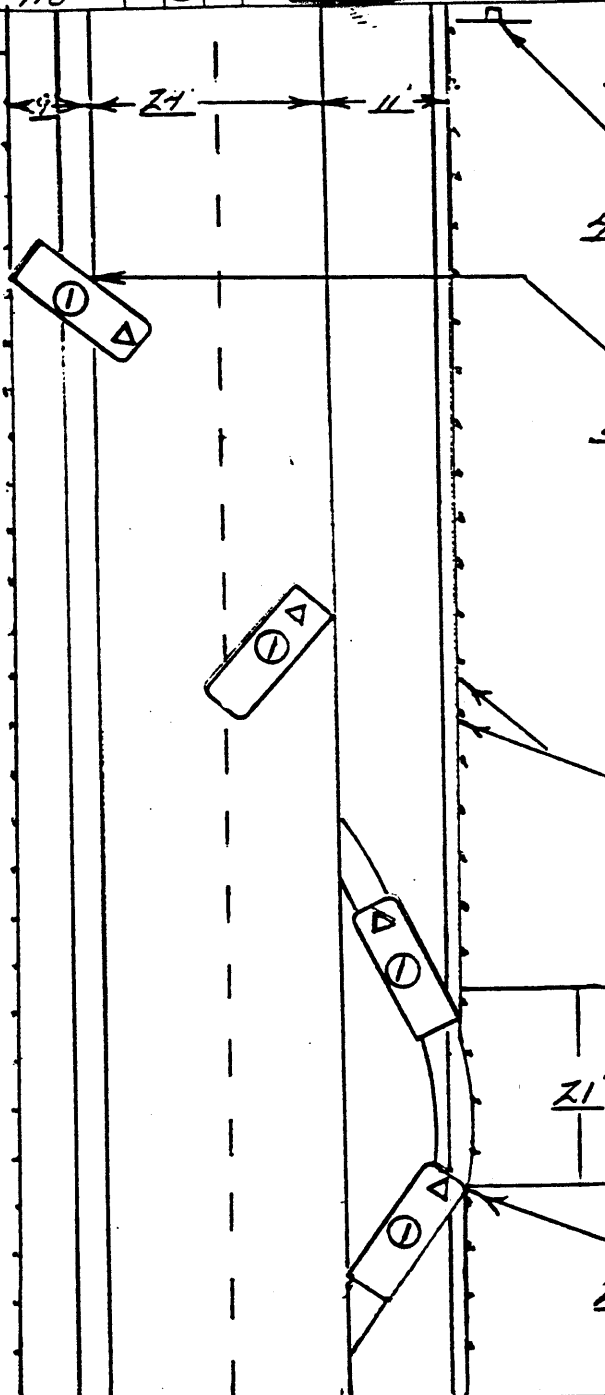
POLICE TRAFFIC ACCIDENT REPORT SUPPLEMENTARY

REPORTING AGENCY Police	KILLED 1	INJURED 5	INVESTIGATION COMPLETE <input type="checkbox"/> INCOMPLETE <input checked="" type="checkbox"/>	H. & R. 16	DAY 10	TIME 0345	MO. 11	DAY 91	YEAR	
TOWN 3/10	MILES 3/10	N <input checked="" type="checkbox"/> S <input type="checkbox"/>	E <input checked="" type="checkbox"/> W <input type="checkbox"/>	IN <input checked="" type="checkbox"/> OUT <input type="checkbox"/>	TOWN	COUNTY				

Highway Dept. Equipment

FATAL

0 20
1 INCH = 20 FEET



I-68
REFERENCE POINT
43 M.M. 114' EAST

FINAL REST
164 FT FROM R.P.

GUARD RAIL

POINT OF IMPACT
256 FT FROM R.P.

DRIVERS/WITNESSES/PASSENGERS	ADDRESS	IF DECEASED - DATE/TIME	33	32	31	30	29	28	27	26	25
[REDACTED]	[REDACTED]		2	3	8	F	28	1	3	3	1

Highway Dept. Equipment

ENFORCEMENT ACTION #1 #2	CITATION OR CASE NO.	KRS NUMBER	OFFENSE	PHOTOS <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
INVESTIGATOR [REDACTED]	I.D. NO. [REDACTED]	BEAT OR POST NO. [REDACTED]	TIME NOTIFIED 0356	TIME ARRIVED 0358
SCENE CLEARED 0452	REVIEWED BY [REDACTED]	PAGE OF PAGES 2/2		

APPENDIX B

Air Bag Supplement

ACCIDENT SUMMARY

ACCIDENT DATE 191

POLICE INVESTIGATED (1,2,9)*

ity [REDACTED] County 211

GENERAL LOCALITY

- (1) Freeway, Limited Access
- (2) Urban (City)
- (3) Urban-Rural (mixed)
- (4) Rural, Fields

CONFIGURATION (First Harm)

- 0) Struck Object or Pedestrian
- (1) Rear-End
- '2) Head-On
- 3) Rear-to-Rear
- (4) Angle
- (5) Sideswipe-Same Direction
- 6) Sideswipe-Opposite Direct.
- .7) NonColl:eg Fell from Veh
- (8) NonImpact Deployment
- 9) Unknown

FIRE INVOLVED (0) None

- (1) AirBag Vehicle
(2) Other Vehicle
(3) Both Vehicles
(9) Unknown

NUMBER: VEHICLES INVOLVED

(8) = 8 or more

PERSONS INVOLVED

INJURED PERSONS

MAXIMUM AIS IN ACCIDENT

OTHER VEHICLE: MAXIMUM AIS

PRIME/DEPLOY IMPACT w AB VEH:
EVENT NUMBER

CDC _____

TOTAL DELTA-V

Model Year, Make, Model, Body Type:

N/A

AIRBAG VEHICLE INSPECTION

DATE VEH. INSPECTED 191

REASON VEHICLE NOT INSPECTED

- (0) Not Required
(1) Inspection Completed
(2) Cannot be Located**
(3) Repaired or Destroyed**
(5) Refual or Impounded**
(7) Other*

****Specify:**

IMPACT DATA OBTAINED

- (0) No Data Obtained
- (1) CDC Only
- (2) Crush Profile Only
- (3) Trajectory Data Only
- (4) CDC and Crush Profile
- (5) CDC and Trajectory
- (6) Crush and Trajectory
- (7) CDC, Crush & Trajectory

BASIS OF DELTA-V

- (0) Not Computed (Unknown Why)
- (1) CRASH - Damage Only
- (2) CRASH - Damage+Trajectory
- (3) Missing Vehicle Algorithm
- (4) Yielding Object Algorithm
- (5) Unknown Basis
- (6) One Vehicle Beyond Scope
- (7) Collision Beyond Scope
- (8) Insufficient Data

VEHICLE HISTORY

HAS AIRBAG VEHICLE BEEN IN
ANY PRIOR IMPACTS (1,2,9)*

HAS ANY PRIOR MAINTENANCE/SERVICE
BEEN PERFORMED ON SYSTEM(1,2,9)*

*Describe:

AIRBAG VEHICLE: FLEET FORD TAURUS

VIN LFACP5202MA _ _ _ _

MILEAGE 5082.2

* (1)=Yes, (2)=No, (9)=Unknown

DRAFT - [REDACTED] 85

25

SYSTEM READINESS LAMP
(In Instrument Cluster)

PRE-IMPACT LAMP CONDITION

- (1) Functioning/ProvedOut
- (2) Inoperative
- (9) Unknown

1

RIVER'S REPORT OF
PRE-IMPACT FLASHING

- (00) No Flashing Reported
- (01) Continuous Flashing
- (02)
- >Number of Flashes
- (11)
- (12) Constant Light
- (19) Flashing, Unkn Number
- (88) Not App (system removed)
- (99) Unknown

0 0

PERIOD OF PRE-IMPACT FLASHING

- (0) No Flashing
- (1) Same Day as Impact
- (2) Prior Day
- (3) Prior Two Days
- (4) Prior Week
- (5) Prior Month
- (6) Over One Month
- (9) Unknown

0

POST-IMPACT LAMP CONDITION

- (1) Functioning/ProvedOut
- (2) Inoperative
- (9) Unknown

1

POST-IMPACT FLASHING

- (00) No Flashing
- (01) Continuous Flashing
- (02)
- >Number of Flashes
- (11)
- (12) Constant Light
- (19) Flashing, Unkn Number
- (88) Not Appl (removed)
- (99) Unknown

1 2

AIRBAG VEHICLE
FIRST HARMFUL EVENT

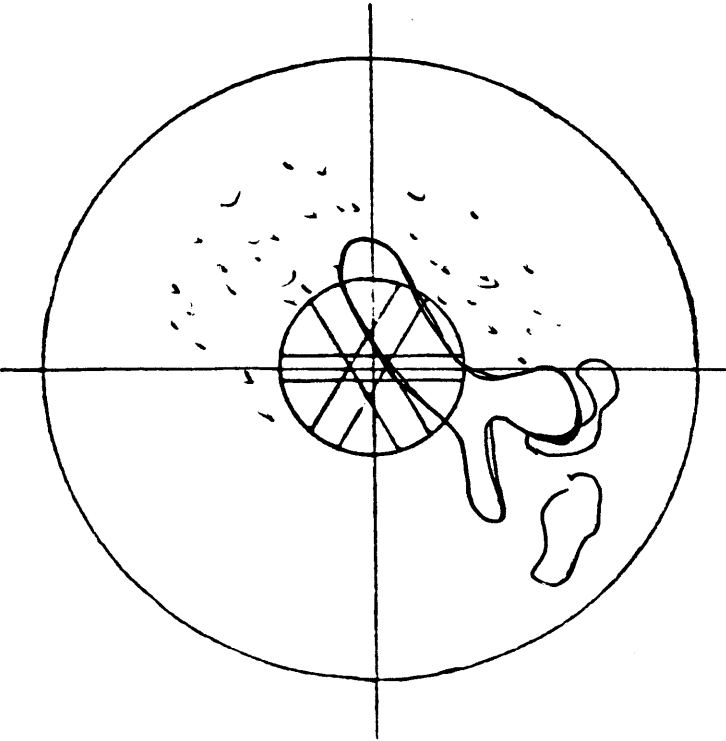
- (01) Fire or explosion
- (02) Immersion
- (03) Gas Inhalation
- (04) Fell from vehicle
- (05) Injured in vehicle
- (06) Other noncollision (specify):
- (07) Overturn
- (08) Jackknife with intraunit damage
Collision With:
- (09) Pedestrian
- (10) Pedalcyclist
- (11) Railway train
- (12) Animal
- (13) Motor vehicle in transport (same roadway)
- (14) Motor vehicle in transport (other roadway)
- (15) Parked motor vehicle
- (16) Other type nonmotorist (specify):
- (17) Thrown or falling object
- (18) Boulder
- Collision with Fixed Object:
- (20) Building
- (21) Impact attenuator/Crash Cushion
- (22) Bridge pier or abutment
- (23) Bridge parapet end
- (24) Bridge rail
- (25) Guardrail
- (26) Concrete traffic barrier
- (27) Median barrier
- (28) Other longitudinal barrier (specify):
- (29) Highway/Traffic sign post
- (30) Overhead sign support
- (31) Luminaire/Light support
- (32) Utility pole
- (33) Other post, pole, or support (specify):
- (34) Culvert
- (35) Curb
- (36) Ditch
- (37) Embankment-earth
- (38) Embankment-rock, stone or concrete
- (39) Fence (wooden, wire, chain link, etc.)
- (40) Wall (stone, rock, metal, etc.)
- (41) Fire hydrant
- (42) Shrubbery
- (43) Tree
- (44) Other fixed object (specify):
- (45) Pavement surface irregularity (pothole, grooved, grates)
- (99) Unknown

<p>AIRBAG VEHICLE IMPACT SUMMARY</p> <p>VEHICLE ROLE</p> <p>(0) Non-collision (1) Striking Unit (2) Struck Unit (3) Both Striking and Struck (9) Unknown</p> <p>MANNER OF LEAVING SCENE</p> <p>(1) Driven (2) Towed-due to damage (3) Towed - not for damage (4) Towed - details unknown (5) Abandoned (9) Unknown</p> <p>NUMBER OF IMPACT EVENTS</p> <p>(8) 8 or more, (9) Unknown</p> <p>ROLLOVER (0) No Rollover (1) First Event (2) Subsequent Event (3) Yes, Unknown Event (9) Unknown</p> <p>OVERRIDE/UNDERRIDE</p> <p>(1) No over/underride (2) Override - 1st CDC (3) - Other CDC (4) Underride - 1st CDC (6) - Other CDC (9) Unknown</p>	<p><u>1</u></p> <p><u>2</u></p> <p><u>2</u></p> <p><u>0</u></p> <p><u>1</u></p> <p><u>2</u></p> <p><u>2</u></p> <p><u>2</u></p> <p><u>3</u></p> <p><u>3</u></p>	<p>FIRST AIRBAG VEHICLE IMPACT:</p> <p>CONFIGURATION</p> <p>(0) <u>Struck Object</u> or Pedestrian (1) Rear-End (2) Head-On (3) Rear-to-Rear (4) Angle (5) Sideswipe - Same Direction (6) Sideswipe-Opposite Direct. (7) NonCollision Fell from Veh (8) NonImpact Deployment (9) Unknown</p> <p>CDC <u>11 - F D E W - 1</u></p> <p>OBJECT CONTACTED: <u>W-BEAM GUARDRAIL</u></p> <p>-----</p> <p>PRIMARY/DEPLOYMENT IMPACT:</p> <p>EVENT NUMBER <u>NO CRASH</u></p> <p>TOTAL DELTA-V</p> <p>LONGITUDINAL DELTA-V</p> <p>CONFIGURATION</p> <p>(0) Struck Object or Pedestrian (1) Rear-End (2) Head-On (3) Rear-to-Rear (4) Angle (5) Sideswipe - Same Direction (6) Sideswipe-Opposite Direct. (7) NonCollision Fell from Veh (8) NonImpact Deployment (9) Unknown</p> <p>CDC <u>11 - F D E W - 1</u></p> <p>OBJECT CONTACTED: <u>W-BEAM GUARDRAIL</u></p> <p>NOTES:</p>	<p><u>0</u></p> <p><u>0</u></p> <p>-----</p> <p>-----</p> <p>-----</p>
<p>AIRBAG VEHICLE DAMAGE</p> <p>CODES: (1) Yes, DAMAGED (2) No Damage (9) Unknown</p> <p>LEFT FRONT FENDER DAMAGE</p> <p>RIGHT FRONT FENDER DAMAGE</p> <p>CENTER TOP OF GRILLE DAMAGE</p> <p>-----</p> <p>FRONT BUMPER E.A. STATUS: Left Right</p> <p>(1) Normal (2) Extended (3) Partial Compression (4) Complete Compression (5) Not Applicable (9) Unknown</p>	<p><u>2</u></p> <p><u>2</u></p> <p><u>2</u></p> <p><u>3</u></p> <p><u>3</u></p>		

AIRBAG SYSTEM DAMAGE CODES: (1) Yes, Damaged* (2) No, Intact (8) Not App.(Removed) (9) Unknown		CONDITION OF DEPLOYED BAG (1) Bag Intact (2) Split or Torn* (3) Cut by Object In Impact* (4) Cut after Accident* (5) Other (e.g., burned)* (8) N/A (not deployed) (9) Unknown	<u>1</u>
AIRBAG MODULE SENSORS: Left Front Center Front Right Front Rear, Cowl DIAGNOSTIC MODULE WIRING KNEE DIVERTER <i>CONTACTED NOT DAMAGED</i> INDICATION OF DISCONNECTED OR LOOSE ELECTRICAL CONNECTORS	<u>2</u> <u>2</u> <u>2</u> <u>8</u> <u>2</u> <u>2</u> <u>2</u> <u>2</u>	*DESCRIBE System and Bag Damage: _____ _____ _____ _____ _____ _____	

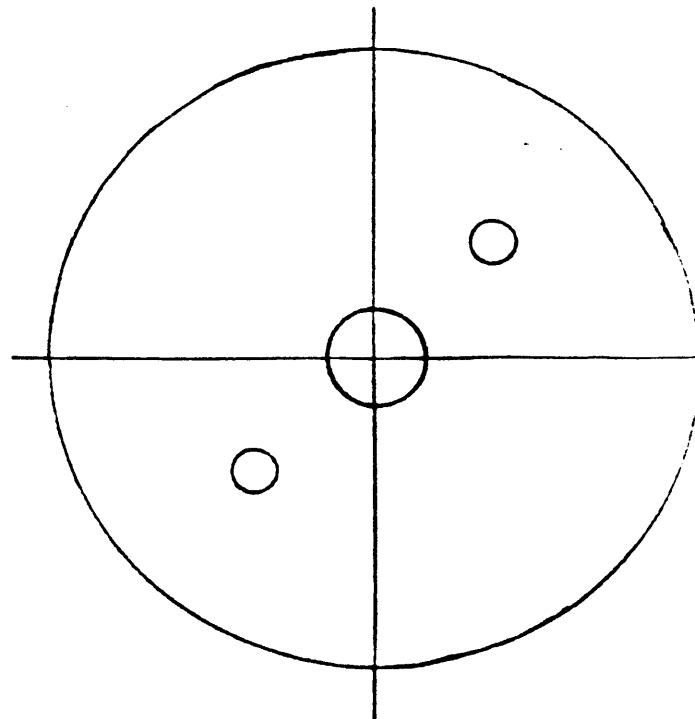
NOTE DAMAGE AND CONTACT MARKS ON AIRBAG DIAGRAMS BELOW:

BLOOD STAIN ON AIR BAG



FRONT

TOP



BOTTOM

BACK

OCCUPANTS of AIRBAG CAR		NOTES:
NUMBER OF OCCUPANTS IN VEHICLE	<u>6</u>	
(8) 8 or more	<u>2</u>	
NUMBER OF INJURED PERSONS	<u>4</u>	
MAXIMUM AIS IN AIRBAG VEHICLE	<u>4</u>	
(0) No Injury (1-6) AIS Severity (7) Injured, Unknown Severity (9) Unknown		
DRIVER AGE <u>35</u> SEX <u>FEMALE</u>		
NUMBER OF DRIVER INJURIES	<u>8</u>	
SOURCE OF BEST INJURY DATA	<u>2</u>	
(0) Not Injured (1) Autopsy w/wo med. records (2) Hospital Medical Records (3) Emergency Room only (4) Private physician, Clinic (5) Lay Coroner Report (6) EMS Personnel (7) Interviewee (8) Police (9) Unknown		

MAXIMUM AIS BY BODY REGION		
REGION	MAX AIS	CONTACT
Head/Neck/Face	<u>4</u>	② A-PILLAR
Chest	<u>1</u>	AIR BAG
Abdomen	---	---
Leg/Hips	---	---
Other (Arms)	---	---
DRIVER MAXIMUM	<u>4</u>	② A-PILLAR

SECTION: Extent <u>NONE</u>		
Portal <u>N/A</u>		

DRIVER BELT USAGE: (1) Used (2) Not Used (9) Unknown 1

Evidence: BELT WORN UNDER LEFT ARM, (HABIT PER HUSBAND) BLOOD STAIN
ON BELT WEBBING AROUND LATCHPLATE AREA

DRIVER POSTURE: Any Comments Recorded (1) Yes, (2) No 2

Describe driver's posture and position on seat including specific comments on head, torso, buttocks, legs and feet. Also note hand and arm position. Did driver brace before crash? Describe:

SEAT PRESUMABLY SET TO A FORWARD POSITION

DRIVER FOREIGN OBJECTS: Comments Recorded (1) Yes, (2) No 2

Was driver wearing contact lenses or eyeglasses? Or holding any foreign object at the time of the impact (packages on lap, pipe, food, bottle, cigarette, etc.)? Did any lenses, objects, or jewelry play any role?:

DRIVER COMMENTS: Comments Recorded (1) Yes, (2) No 2

Was the driver aware that the vehicle was equipped with a supplemental restraint system? Did driver offer any comments on smoke, noise, etc.? Did the driver comment on the airbag as a restraint system? Describe:

PASSENGER-AIRBAG CONTACT (1) Yes, (2) No, (9) Unknown 2

Describe: _____

APPENDIX C

NASS Vehicle Forms



GENERAL VEHICLE FORM

1. Primary Sampling Unit Number
2. Case Number — ~~Stratum~~ 91-08
3. Vehicle Number 01

VEHICLE IDENTIFICATION

4. Vehicle Model Year 91
Code the last two digits of the model year
(99) Unknown
5. Vehicle Make (specify): 12
FORD
Applicable codes are found in your
NASS CDS Data Collection, Coding, and
Editing Manual.
(99) Unknown
6. Vehicle Model (specify): 017
TAURUS
Applicable codes are found in your
NASS CDS Data Collection, Coding, and
Editing Manual.
(999) Unknown
7. Body Type 04
Note: Applicable codes are found on
the back of this page.
8. Vehicle Identification Number
1FACP5202MA
Left justify; Slash zeros and letter Z (0 and Z)
No VIN — Code all zeros
Unknown — Code all nine's

OFFICIAL RECORDS

9. Police Reported Vehicle Disposition 1
(0) Not towed due to vehicle damage
(1) Towed due to vehicle damage
(9) Unknown
10. Police Reported Travel Speed 99
Code to the nearest mph (NOTE: 00 means
less than 0.5 mph)
(97) 96.5 mph and above
(99) Unknown

11. Police Reported Alcohol Presence 0
(0) No alcohol present
(1) Yes (alcohol present)
(7) Not reported
(8) No driver present
(9) Unknown

Note: See variables 37 through 55
(Page 4) for Information on Other Drugs

12. Alcohol Test Result for Driver 96
Code actual value (decimal implied before
first digit—0.xx)
(95) Test refused
(96) None given
(97) AC test performed, results unknown
(98) No driver present
(99) Unknown

Source

ACCIDENT RELATED

13. Speed Limit 55
(00) No statutory limit
Code posted or statutory speed limit
(99) Unknown
14. Attempted Avoidance Maneuver 09
(00) No impact
(01) No avoidance actions
(02) Braking (no lockup)
(03) Braking (lockup)
(04) Braking (lockup unknown)
(05) Releasing brakes
(06) Steering left
(07) Steering right
(08) Braking and steering left
(09) Braking and steering right
(10) Accelerating
(11) Accelerating and steering left
(12) Accelerating and steering right
(97) No driver present
(98) Other action (specify):

(99) Unknown
15. Accident Type 02
Applicable codes may be found on the back
of page two of this field form
(00) No impact
Code the number of the diagram that
best describes the accident circumstance
(98) Other accident type (specify):

(99) Unknown

**** SKIP TO VARIABLE GV37 IF GV07 DOES NOT EQUAL 01-49 ****

CODES FOR BODY TYPE

BEST AVAILABLE COPY

CDS APPLICABLE VEHICLES

Automobiles

- (01) Convertible (excludes sun-roof, t-bar)
- (02) 2-door sedan, hardtop, coupe
- (03) 3-door/2-door hatchback
- (04) 4-door sedan, hardtop
- (05) 5-door/4-door hatchback
- (06) Station wagon (excluding van and truck based)
- (08) Other automobile type (specify):

(09) Unknown automobile type

Automobile Derivatives

- (10) Auto based pickup (includes El Camino, Caballero, Ranchero, and Brat)
- (11) Auto based panel (cargo station wagon, includes auto based ambulance/hearse)
- (12) Large limousine—more than four side doors or stretched chassis

Utility Vehicles

- (13) Short utility—not truck based (includes Jeep CJ-5, Jeep CJ-7, Renegade, Landrover, Pre-78 Bronco, Landcruiser, Thing)
- (14) Truck based utility (2-door; includes Blazer, Bronco—78 on, Bronco II, Jimmy, Ramcharger, Cherokee, Trailduster, Scout)

Van Based Light Trucks ($\leq 10,000$ lbs GVWR)

- (20) Minivan (Lumina APV, Astro, Caravan, Plymouth Vista, Aerostar, Safari, Voyager [84 and after], Dodge Vista, Mini Ram Van, Toyota Cargo Van, Toyota Van, Vanagon, VW Bus, Kombi)
- (21) Standard van (Sportvan, Chevy Van, Club Wagon, Ford Econoline, Ram Van, Chateau, Ram Wagon, Vandura, Rally, Voyager [83 and before], Beauville, Sportsman)
- (28) Other van type (Hi-Cube Van, Kary) (specify):

(29) Unknown van type

Light Conventional Trucks (Pickup Style Cab, $\leq 10,000$ lbs GVWR)

- (30) Compact pickup ($<4,500$ lbs. GVWR, S-10, LUV, Ram 50, Rampage, Courier, Ranger, S-15 Pup, Mazda Pickup, Mitsubishi Truck, Nissan Pickup, Arrow Pickup, Scamp, Toyota Pickup, VW Pickup)
- (31) Standard pickup (4,500 to 10,000 lbs. GVWR, C10 - C30, K10 - K30, T10, D100 - D350, W150 - W350, F100 - F350, Comanche, J10 - J30, Dakota)
- (32) Pickup with slide-in camper
- (33) Truck based station wagon (4-door; includes Suburban, Travelall, Wagoneer)
- (34) Light truck based suburban limousine
- (35) Convertible pickup
- (39) Unknown (pickup style) light conventional truck type

Other Light Trucks ($\leq 10,000$ lbs GVWR)

- (40) Cab chassis based (includes rescue vehicle, light stake, dump, and tow truck)
 - (41) Truck based panel
 - (42) Light truck based motorhome (chassis mounted)
 - (47) Other light conventional truck type (not a pickup—includes step vans $\leq 10,000$ lbs GVWR, Grumman LLV vehicle) (specify):
-
- (48) Unknown other light truck type (not a pickup)
 - (49) Unknown light vehicle type (automobile, van, or light truck)

OTHER VEHICLES

Buses (Excludes Van Based)

- (50) School bus (designed to carry students, not cross country or transit)
- (58) Other bus type (e.g., transit, intercity, bus based motorhome) (specify):

(59) Unknown bus type

Medium/Heavy Trucks ($>10,000$ lbs GVWR)

- (60) Step van
- (61) Single unit straight truck (10,000 lbs $<$ GVWR $\leq 26,000$ lbs)
- (62) Single unit straight truck ($>26,000$ lbs GVWR)
- (63) Medium/heavy truck based motorhome
- (64) Truck-tractor with no cargo trailer
- (65) Truck-tractor pulling one trailer
- (66) Truck-tractor pulling two or more trailers
- (67) Truck-tractor (unknown if pulling trailer)
- (68) Unknown medium/heavy truck type
- (69) Unknown truck type (light/medium/heavy)

Motored Cycles (Does Not Include All-Terrain Vehicles/Cycles)

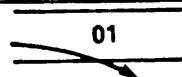
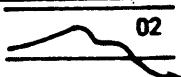
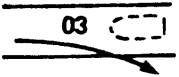
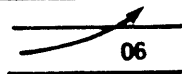
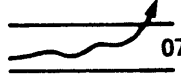
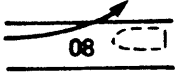
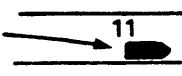
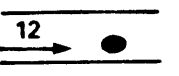
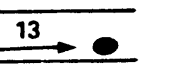
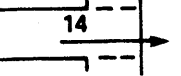
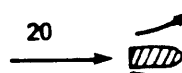

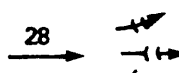


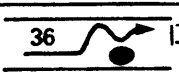
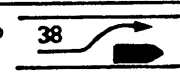
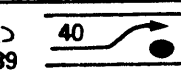
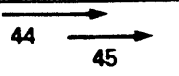
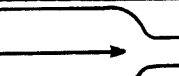
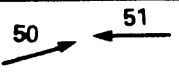

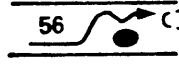
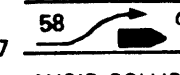
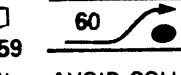
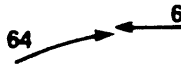
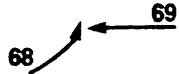
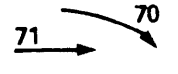
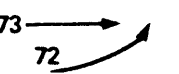
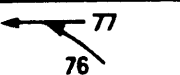
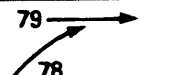
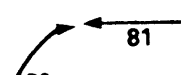
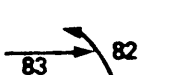
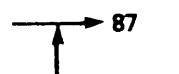

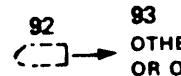
- (70) Motorcycle
- (71) Moped (motorized bicycle)
- (78) Other motored cycle type (minibike, motorscooter) (specify):

(79) Unknown motored cycle type

Other Vehicles

- (80) ATV (All-Terrain Vehicle) and ATC (All-Terrain Cycle)
- (88) Other vehicle type (specify):

(99) Unknown body type

Category	Configuration	ACCIDENT TYPES (Includes Intent)					
I. Single Driver	A. Right Roadside Departure	 01 DRIVE OFF ROAD	 02 CONTROL/ TRACTION LOSS	 03 AVOID COLLISION WITH VEH., PED., ANIM.	04 SPECIFICS OTHER	05 SPECIFICS UNKNOWN	
	B. Left Roadside Departure	 06 DRIVE OFF ROAD	 07 CONTROL/ TRACTION LOSS	 08 AVOID COLLISION WITH VEH., PED., ANIM.	09 SPECIFICS OTHER	10 SPECIFICS UNKNOWN	
	C. Forward Impact	 11 PARKED VEH.	 12 STA. OBJECT	 13 PEDESTRIAN/ ANIMAL	 14 END DEPARTURE	15 SPECIFICS OTHER	16 SPECIFICS UNKNOWN
II. Same Trafficway Same Direction	D. Rear-End	 20 STOPPED 21, 22, 23	 24 SLOWER 25, 26, 27	 28 DECEL. 29, 30, 31	 30 AVOID COLLISION WITH VEH.	(EACH • 32) SPECIFICS OTHER	(EACH • 33) SPECIFICS UNKNOWN
	E. Forward Impact	 34 CONTROL/ TRACTION LOSS	 36 CONTROL/ TRACTION LOSS	 38 AVOID COLLISION WITH VEH.	 40 AVOID COLLISION WITH OBJECT	(EACH • 42) SPECIFICS OTHER	(EACH • 43) SPECIFICS UNKNOWN
	F. Sideswipe Angle	 44 45	 46 45 47	(EACH • 48) SPECIFICS OTHER		(EACH • 49) SPECIFICS UNKNOWN	
III. Same Trafficway Opposite Direction	G. Head-On	 50 LATERAL MOVE	(EACH • 52) SPECIFICS OTHER	(EACH • 53) SPECIFICS UNKNOWN			
	H. Forward Impact	 54 CONTROL/ TRACTION LOSS	 56 CONTROL/ TRACTION LOSS	 58 AVOID COLLISION WITH VEH.	 60 AVOID COLLISION WITH OBJECT	(EACH • 62) SPECIFICS OTHER	(EACH • 63) SPECIFICS UNKNOWN
	I. Sideswipe Angle	 64 LATERAL MOVE	(EACH • 66) SPECIFICS OTHER	(EACH • 67) SPECIFICS UNKNOWN			
IV. Change Trafficway Vehicle Turning	J. Turn Across Path	 68 INITIAL OPPOSITE DIRECTIONS	 71 INITIAL SAME DIRECTIONS	 73 72	(EACH • 74) SPECIFICS OTHER		(EACH • 75) SPECIFICS UNKNOWN
	K. Turn Into Path	 77 76 TURN INTO SAME DIRECTION	 79 78 TURN INTO OPPOSITE DIRECTIONS	 81 80	 83 82	(EACH • 84) SPECIFICS OTHER	(EACH • 85) SPECIFICS UNKNOWN
V. Intersecting Paths (Vehicle Damage)	L. Straight Paths	 86 87	 88 89	(EACH • 90) SPECIFICS OTHER		(EACH • 91) SPECIFICS UNKNOWN	
VI. Miscellaneous	M. Backing Etc.	 92 BACKING VEH.	93 OTHER VEH. OR OBJECT	98 Other Accident Type 99 Unknown Accident Type 00 No Impact			

29. Basis for Total Delta V (Highest)

5

Delta V Calculated

- (1) CRASH program – damage only routine
- (2) CRASH program – damage and trajectory routine
- (3) Missing vehicle algorithm

Delta V Not Calculated

- (4) At least one vehicle (which may be this vehicle) is beyond the scope of an acceptable reconstruction program, regardless of collision conditions.
- (5) All vehicles within scope (CDC applicable) of CRASH program but one of the collision conditions is beyond the scope of the CRASH program or other acceptable reconstruction techniques, regardless of adequacy of damage data.
- (6) All vehicles and collision conditions are within scope of one of the acceptable reconstruction programs, but there is insufficient data available.

COMPUTER GENERATED DELTA V

30. Total Delta V

Secondary Highest

99

____ Nearest mph

(NOTE: 00 means less than
0.5 mph)
(97) 96.5 mph and above
(99) Unknown

31. Longitudinal Component of Delta V

+ 99

____ Nearest mph

(NOTE: __00 means greater than
- 0.5 and less than + 0.5 mph)
(± 97) ± 96.5 mph and above
(__ 99) Unknown

32. Lateral Component of Delta V

Secondary Highest

+ 99

____ Nearest mph

(NOTE: __00 means greater than
- 0.5 and less than + 0.5 mph)
(± 97) ± 96.5 mph and above
(__ 99) Unknown

33. Energy Absorption

999,900

____ Nearest 100 foot-lbs

(NOTE: 0000 means less than 50 Foot-Lbs)
(9997) 999,650 foot-lbs or more
(9999) Unknown

34. Confidence in Reconstruction Program Results (for Highest Delta V)

0

- (0) No reconstruction
- (1) Collision fits model – results appear reasonable
- (2) Collision fits model – results appear high
- (3) Collision fits model – results appear low
- (4) Borderline reconstruction – results appear reasonable

35. Type of Vehicle Inspection

1

- (0) No Inspection
- (1) Complete inspection
- (2) Partial inspection (specify):

36. Is this an AOPS Vehicle?

1

- (0) No
- (1) Yes

IS OLDMISS APPLICABLE FOR THIS VEHICLE? [] YES [] NO
IF YES: IS A COMPLETED OLDMISS PROGRAM SUMMARY INCLUDED? [] YES [] NO

National Accident Sampling System-Crashworthiness Data System: General Vehicle Form

Page 4

37. Police Reported Other Drug Presence 0
- (0) No other drugs present
 (1) Yes (other drug present)
 (7) Not reported
 (8) No driver present
 (9) Unknown

38. Police Reported Observation/Perception Test Type For Driver 0
- (0) No observation/perception test given
 (1) Drug recognition technician (DRT) determination
 (2) Behavioral
 (3) Other physical observation/perception determination (specify):

- (7) Other observation/perception test
 (8) No driver present

39. Other Drug Specimen Test Type For Driver 9
- (0) No specimen test given
 (1) Blood test
 (2) Urine test
 (3) Other specimen tests (specify):

- (7) Unspecified specimen test
 (8) No driver present
 (9) Unknown if specimen test given

OTHER DRUGS TEST RESULTS FOR DRIVER

	Observation/ Perception Test Results	Specimen Test Results
Narcotic Drug	40. <u>0</u>	41. <u>9</u>
Depressant Drug	42. <u>0</u>	43. <u>9</u>
Stimulant Drug	44. <u>0</u>	45. <u>9</u>
Hallucinogen Drug	46. <u>0</u>	47. <u>9</u>
Cannabinoid Drug	48. <u>0</u>	49. <u>9</u>
Phencyclidine (PCP) Drug	50. <u>0</u>	51. <u>9</u>
Inhalant Drug	52. <u>0</u>	53. <u>9</u>
Other Drug (Excluding Nicotine, Aspirin, Alcohol, Drugs Administered Post-Crash)	54. <u>0</u>	55. <u>9</u>

Codes For Observation/Perception Test Results

- (0) No observation/perception test given
 (1) Passed observation/perception test
 (2) Failed observation/perception test
 (3) Observation/perception test given—
 results unknown
 (8) No driver present
 (9) Unknown if observation/perception
 test given

Codes for Specimen Test Results

- (0) No specimen test given
 (1) Drug not found in specimen
 (2) Drug found in specimen
 (8) No driver present
 (9) Unknown if specimen test given

*** IF THE CDS APPLICABLE VEHICLE WAS NOT INSPECTED (I.E., GV35 = 0), ***
 DO NOT COMPLETE THE EXTERIOR AND INTERIOR VEHICLE FORMS

*** IF GV07 DOES NOT EQUAL 01-49, DO NOT COMPLETE ***
 THE EXTERIOR VEHICLE, INTERIOR VEHICLE,
 OCCUPANT ASSESSMENT, AND OCCUPANT INJURY FORMS.

EXTERIOR VEHICLE FORM

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

Administration	
1. Primary Sampling Unit Number _____	3. Vehicle Number <u>01</u>
2. Case Number — Stratum <u>91-08</u>	

VEHICLE IDENTIFICATION

VIN 1FACP52U2MA _____ Model Year 1991

Vehicle Make (specify): FORD Vehicle Model (specify): TAURUS

LOCATOR

Locate the end of the damage with respect to the vehicle longitudinal center line or bumper corner for end impacts or an undamaged axle for side impacts.

Specific Impact No.	Location of Direct Damage	Location of Field L
1	FRONT BUMPER, STARTS 22" (6) OF CENTER, EXTENDS 52.375" TO RIGHT CORNER	FRONT BUMPER, 60.25" CORNER- TO-CORNER

CRUSH PROFILE

NOTES: Identify the plane at which the C-measurements are taken (e.g., at bumper, above bumper, at sill, above sill, etc.) and label adjustments (e.g., free space).

Measure and document on the vehicle diagram the location of maximum crush.

Measure C1 to C6 from driver to passenger side in front or rear impacts and rear to front in side impacts.

Free space value is defined as the distance between the baseline and the original body contour taken at the individual C locations. This may include the following: bumper lead, bumper taper, side protrusion, side taper, etc. Record the value for each C-measurement and maximum crush.

Use as many lines/columns as necessary to describe each damage profile.

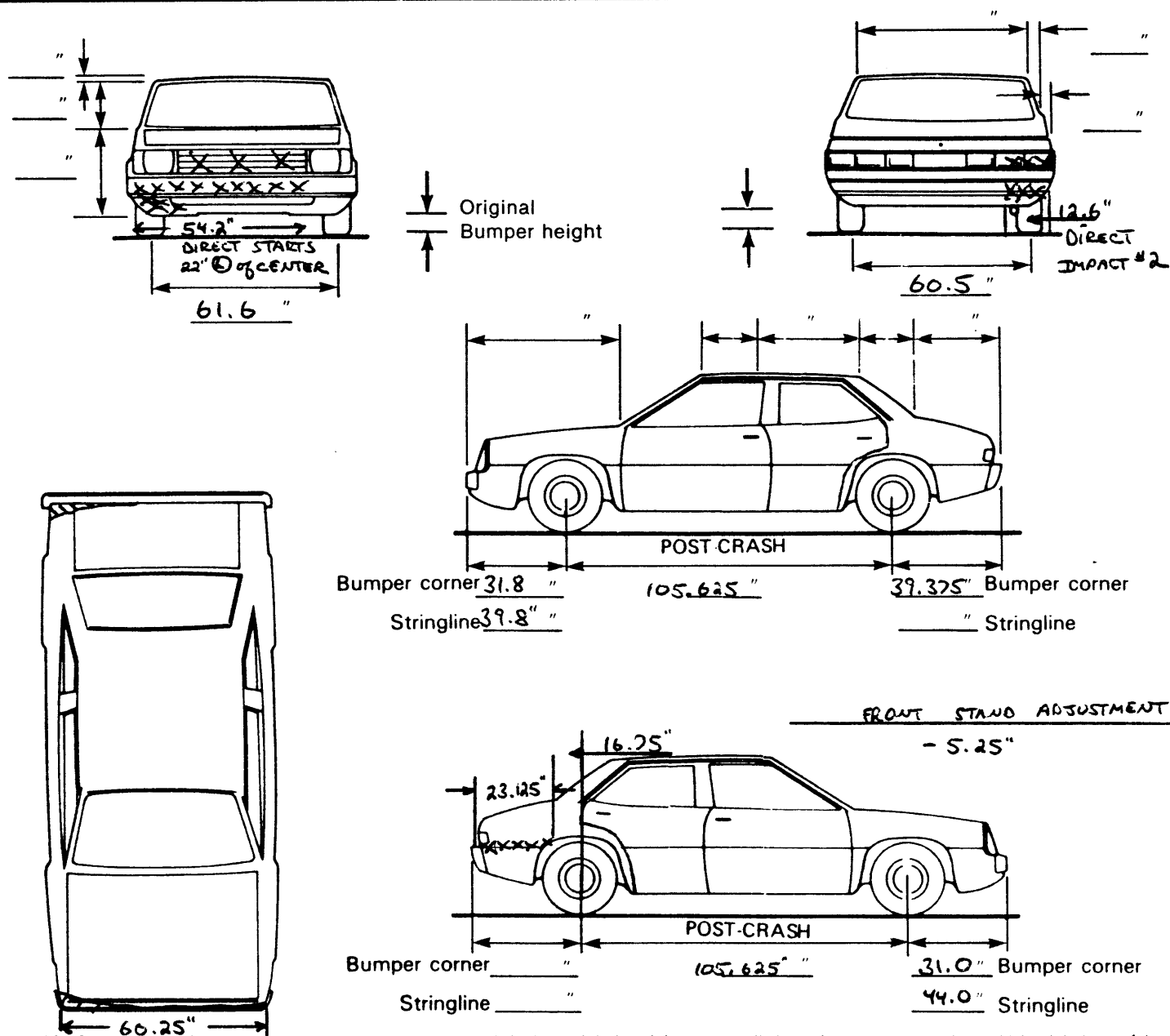
[illegible]

National Accident Sampling System – Crashworthiness Data System: Exterior Vehicle Form

Page 2

VEHICLE DAMAGE SKETCH

TIRE – WHEEL DAMAGE a. Rotation physically restricted RF <u>2</u> LF <u>2</u> RR <u>2</u> LR <u>2</u> (1) Yes (2) No (8) NA (9) Unk.		b. Tire deflated RF <u>2</u> LF <u>2</u> RR <u>2</u> LR <u>2</u>		ORIGINAL SPECIFICATIONS Wheelbase <u>106.0</u> Overall Length <u>188.4</u> Maximum Width <u>70.8</u> Curb Weight <u>3049</u> Average Track <u>61.05</u> Front Overhang _____ Rear Overhang _____ Engine Size: cyl./ displ. <u>6 cyl. 3.0 liter</u> Undeformed End Width _____		WHEEL STEER ANGLES (For locked front wheels or displaced rear axles only) RF ± _____° LF ± _____° RR ± _____° LR ± _____° Within ± 5 degrees	
TYPE OF TRANSMISSION <input type="checkbox"/> Manual <input checked="" type="checkbox"/> Automatic				DRIVE WHEELS <input type="checkbox"/> FWD <input type="checkbox"/> RWD <input type="checkbox"/> 4WD		Approximate Cargo Weight _____	



NOTES: Sketch new perimeter and cross hatch direct damage and single hatch induced damage on all views. Annotate observations which might be useful in reconstructing the accident (e.g., grass in tire bead, direction of striations, scuff on sidewall, etc.). If pulling trailer, sketch type of trailer and damage received on the back of this page.

Annotate any damage caused by extrication such as component removal by torching, prying, or hydraulic shears.

CDC WORKSHEET

CODES FOR OBJECT CONTACTED

01-30 – Vehicle Number

Noncollision

(31) Overturn – rollover

(32) Fire or explosion

(33) Jackknife

(34) Other intraunit damage (specify):

(35) Noncollision injury

(38) Other noncollision (specify):

(39) Noncollision – details unknown

Collision with Fixed Object

(41) Tree (≤ 4 inches in diameter)(42) Tree (> 4 inches in diameter)

(43) Shrubbery or bush

(44) Embankment

(45) Breakaway pole or post (any diameter)

Nonbreakaway Pole or Post

(50) Pole or post (≤ 4 inches in diameter)(51) Pole or post (> 4 but ≤ 12 inches in diameter)(52) Pole or post (> 12 inches in diameter)

(53) Pole or post (diameter unknown)

(54) Concrete traffic barrier

(55) Impact attenuator

(56) Other traffic barrier (specify):

W-BEAM GUARDRAIL

(57) Fence

(58) Wall

(59) Building

(60) Ditch or Culvert

(61) Ground

(62) Fire hydrant

(63) Curb

(64) Bridge

(68) Other fixed object (specify):

(69) Unknown fixed object

Collision With Nonfixed Object

(71) Motor vehicle not in transport

(72) Pedestrian

(73) Cyclist or cycle

(74) Other nonmotorist or conveyance (specify):

(75) Vehicle occupant

(76) Animal

(77) Train

(78) Trailer, disconnected in transport

(88) Other nonfixed object (specify):

(89) Unknown nonfixed object

(98) Other event (specify):

(99) Unknown event or object

DEFORMATION CLASSIFICATION BY EVENT NUMBER

Accident Event Sequence Number	Object Contacted	(1) (2) Direction of Force (degrees)	Incremental Value of Shift	(3) Deformation Location	(4) Specific Longitudinal or Lateral Location	(5) Specific Vertical or Lateral Location	(6) Type of Damage Distribution	(7) Deformation Extent
<u>01</u>	<u>56</u>	<u>330</u>	<u>00</u>	<u>F</u>	<u>D</u>	<u>E</u>	<u>W</u>	<u>01</u>
<u>02</u>	<u>56</u>	<u>170</u>	<u>00</u>	<u>B</u>	<u>R</u>	<u>E</u>	<u>E</u>	<u>04</u>
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National Accident Sampling System—Crashworthiness Data System: Exterior Vehicle Form

Page 4

COLLISION DEFORMATION CLASSIFICATION

HIGHEST DELTA "V"

Accident Event Sequence Number	Object Contacted	(1) (2) Direction of Force	(3) Deformation Location	(4) Specific Longitudinal or Lateral Location	(5) Specific Vertical or Lateral Location	(6) Type of Damage Distribution	(7) Deformation Extent
4. <u>01</u>	5. <u>56</u>	6. <u>LL</u>	7. <u>F</u>	8. <u>D</u>	9. <u>E</u>	10. <u>W</u>	11. <u>01</u>

Second Highest Delta "V"

12. <u>02</u>	13. <u>56</u>	14. <u>06</u>	15. <u>B</u>	16. <u>R</u>	17. <u>E</u>	18. <u>E</u>	19. <u>04</u>
---------------	---------------	---------------	--------------	--------------	--------------	--------------	---------------

CRUSH PROFILE

(The crush profile for the damage described in the CDC(s) above should be documented in the appropriate space below. ALL MEASUREMENTS ARE IN INCHES.)

HIGHEST DELTA "V"

20. L	21. C1	C2	C3	C4	C5	C6	22. + - D
<u>060</u>	<u>00</u>	<u>00</u>	<u>00</u>	<u>00</u>	<u>01</u>	<u>02</u>	<u>004</u>

Second Highest Delta "V"

23. L	24. C1	C2	C3	C4	C5	C6	25. + - D
<u>012</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>

26. Are CDCs Documented but Not Coded on The Automated File?

- (0) No
(1) Yes

0

27. Researcher's Assessment of Vehicle Disposition

- (0) Not towed due to vehicle damage
(1) Towed due to vehicle damage
(9) Unknown

1

28. Original Wheelbase

106.0 Code to the nearest tenth of an inch
(9999) Unknown

National Accident Sampling System-Crashworthiness Data System: Exterior Vehicle Form

Page 5

29. Is This A Multi-Stage Manufactured Vehicle
And/Or A Certified Altered Vehicle?

0

(0) No post manufacturer modifications

(1) Yes - post manufacturer modifications
(specify): _____

(Include photograph of CERTIFICATION
PLACARD in case report)

(9) Unknown if vehicle is modified

30. Fire Occurrence

0

(0) No fire

Yes, fire occurred

(1) Minor

(2) Major

(9) Unknown

31. Origin of Fire

0

(0) No fire

(1) Vehicle exterior (front, side, back, top)

(2) Exhaust system

(3) Fuel tank (and other fuel retention
system parts)

(4) Engine compartment

(5) Cargo/trunk compartment

(6) Instrument panel

(7) Passenger compartment area

(8) Other location (specify): _____

(9) Unknown

32. Type of Fuel Tank

1

(0) No fuel tank (electrical vehicle)

(1) Metallic

(2) Non-metallic

(9) Unknown

*** STOP: IF THE CDS APPLICABLE VEHICLE WAS NOT TOWED ***
(I.E., GV09 = 0 OR 9), DO NOT COMPLETE THE INTERIOR VEHICLE FORM.



U.S. Department of Transportation
National Highway Traffic Safety
Administration

INTERIOR VEHICLE FORM

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number

2. Case Number — ~~Stratum~~ 91-08

3. Vehicle Number 01

INTEGRITY

4. Passenger Compartment Integrity 00

(00) No integrity loss

Yes, Integrity Was Lost Through

(01) Windshield

(02) Door (side)

(03) Door/hatch (back door)

(04) Roof

(05) Roof glass

(06) Side window

(07) Rear window (backlight)

(08) Roof and roof glass

(09) Windshield and door (side)

(10) Windshield and roof

(11) Side and rear window (side window and backlight)

(12) Windshield and side window

(13) Door and side window

(98) Other combination of above (specify):

(99) Unknown

Door, Tailgate Or Hatch Opening

5. LF 1 6. RF 1 7. LR 1 8. RR 1 9. TG/H 0

(0) No door/gate/hatch

(1) Door/gate/hatch remained closed and operational

(2) Door/gate/hatch came open during collision

(3) Door/gate/hatch jammed shut

(8) Other (specify):

(9) Unknown

Damage/Failure Associated with Door, Tailgate or Hatch Opening in Collision. If IV05-IV09 ≠ 2, Then Code 0.

10. LF 1 11. RF 1 12. LR 1 13. RR 1 14. TG/H 0

(0) No door/gate/hatch or door not opened

Door, Tailgate, or Hatch Came Open During Collision

(1) Door operational (no damage)

(2) Latch/striker failure due to damage

(3) Hinge failure due to damage

(4) Door structure failure due to damage

(5) Door support (i.e., pillar, sill, roof side rail, etc.) failure due to damage

(6) Latch/striker and hinge failure due to damage

(8) Other failure (specify):

(9) Unknown

GLAZING

Glazing Damage from Impact Forces

15. WS 0 16. LF 0 17. RF 0 18. LR 0 19. RR 0

20. BL 0 21. Roof 8 22. Other 8

(0) No glazing damage from impact forces

(2) Glazing in place and cracked from impact forces

(3) Glazing in place and holed from impact forces

(4) Glazing out-of-place (cracked or not) and not holed from impact forces

(5) Glazing out-of-place and holed from impact forces

(6) Glazing disintegrated from impact forces

(7) Glazing removed prior to accident

(8) No glazing

(9) Unknown if damaged

Glazing Damage from Occupant Contact

23. WS 0 24. LF 0 25. RF 0 26. LR 0 27. RR 0

28. BL 0 29. Roof 0 30. Other 0

(0) No occupant contact to glazing or no glazing

(1) Glazing contacted by occupant but no glazing damage

(2) Glazing in place and cracked by occupant contact

(3) Glazing in place and holed by occupant contact

(4) Glazing out-of-place (cracked or not) by occupant contact and not holed by occupant contact

(5) Glazing out-of-place by occupant contact and holed by occupant contact

(6) Glazing disintegrated by occupant contact

(9) Unknown if contacted by occupant

If No Glazing Damage **And** No Occupant Contact or No Glazing, Then Code IV 31 Through IV 46 As 0

Type of Window/Windshield Glazing

31. WS 0 32. LF 0 33. RF 0 34. LR 0 35. RR 0

36. BL 0 37. Roof 0 38. Other 0

(0) No glazing contact and no damage, or no glazing

(1) AS-1 — Laminated

(2) AS-2 — Tempered

(3) AS-3 — Tempered-tinted

(4) AS-14 — Glass/Plastic

(8) Other (specify):

(9) Unknown

Window Precrash Glazing Status

39. WS 0 40. LF 0 41. RF 0 42. LR 0 43. RR 0

44. BL 0 45. Roof 0 46. Other 0

(0) No glazing contact and no damage, or no glazing

(1) Fixed

(2) Closed

(3) Partially opened

(4) Fully opened

(9) Unknown

INTRUSION WORK SHEET

TOP
VIEW

Longitudinal

Lateral

Lateral

Longitudinal

LEFT SIDE
VIEW

Vertical

Longitudinal

Longitudinal

RIGHT SIDE
VIEW

Vertical

Longitudinal

Longitudinal

Vertical

Note: Sketch intruded areas

LOCATION OF INTRUSION	INTRUDED COMPONENT	COMPARISON VALUE	—	INTRUDED VALUE	=	INTRUSION	DOMINANT CRUSH DIRECTION
			—		=		
			—		=		
			—		=		
			—		=		
			—		=		
			—		=		
			—		=		
			—		=		
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			—		=		
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			—		=		
			—		=		
			—		=		
			—		=		
			—		=		
			—		=		

Document no more than the 15 most severe intrusions

OCCUPANT AREA INTRUSION

Note: If no intrusions, leave variables IV 47-IV 86 blank.

	Location of Intrusion	Intruding Component	Magnitude of Intrusion	Dominant Crush Direction
1st	47.____	48.____	49.____	50.____
2nd	51.____	52.____	53.____	54.____
3rd	55.____	56.____	57.____	58.____
4th	59.____	60.____	61.____	62.____
5th	63.____	64.____	65.____	66.____
6th	67.____	68.____	69.____	70.____
7th	71.____	72.____	73.____	74.____
8th	75.____	76.____	77.____	78.____
9th	79.____	80.____	81.____	82.____
10th	83.____	84.____	85.____	86.____

LOCATION OF INTRUSION**Front Seat**

- (11) Left
(12) Middle
(13) Right

Fourth Seat

- (41) Left
(42) Middle
(43) Right

Second Seat

- (21) Left
(22) Middle
(23) Right

- (97) Catastrophic
(98) Other enclosed area (specify): _____

(99) Unknown

Third Seat

- (31) Left
(32) Middle
(33) Right

INTRUDING COMPONENT**Interior Components**

- (01) Steering assembly
(02) Instrument panel left
(03) Instrument panel center
(04) Instrument panel right
(05) Toe pan
(06) A-pillar
(07) B-pillar NO INTRUSION
(08) C-pillar
(09) D-pillar
(10) Door panel (side)
(12) Roof (or convertible top)
(13) Roof side rail
(14) Windshield
(15) Windshield header
(16) Window frame
(17) Floor pan (includes sill)
(18) Backlight header
(19) Front seat back
(20) Second seat back
(21) Third seat back
(22) Fourth seat back
(23) Fifth seat back
(24) Seat cushion
(25) Back door/panel (e.g., tailgate)
(26) Other interior component (specify): _____

- (27) Side panel - forward of the A-pillar
(28) Side panel - rear of the A-pillar

Exterior Components

- (30) Hood
(31) Outside surface of vehicle (specify): _____
(32) Other exterior object in the environment (specify): _____
(33) Unknown exterior object
(97) Catastrophic
(98) Intrusion of unlisted component(s) (specify): _____
(99) Unknown

MAGNITUDE OF INTRUSION

- (1) ≥ 1 inch but < 3 inches
(2) ≥ 3 inches but < 6 inches
(3) ≥ 6 inches but < 12 inches
(4) ≥ 12 inches but < 18 inches
(5) ≥ 18 inches but < 24 inches
(6) ≥ 24 inches
(7) Catastrophic
(9) Unknown

DOMINANT CRUSH DIRECTION

- (1) Vertical
(2) Longitudinal
(3) Lateral
(7) Catastrophic
(9) Unknown

STEERING RIM/SPOKE DEFORMATION

COMPARISON VALUE	-	DAMAGE VALUE	=	DEFORMATION
	-		=	
	-		=	
	-		=	
	-		=	

STEERING COLUMN

87. Steering Column Type

2

- (1) Fixed column
 (2) Tilt column
 (3) Telescoping column
 (4) Tilt and telescoping column
 (8) Other column type (specify): _____

(9) Unknown

88. Blank

(This variable is left blank so that numbering consistency can be maintained with the 1988-90 CDS.

X X

89. Blank

(This variable is left blank so that numbering consistency can be maintained with the 1988-90 CDS.

X X X

90. Blank

(This variable is left blank so that numbering consistency can be maintained with the 1988-90 CDS.

X X X

91. Blank

(This variable is left blank so that numbering consistency can be maintained with the 1988-90 CDS.

X X X

92. Steering Rim/Spoke Deformation

1

0.5" Code actual measured @ UPPER RIM
 deformation to the nearest inch.

- (0) No steering rim deformation
 (1-5) Actual measured value
 (6) 6 inches or more
 (8) Observed deformation cannot be measured
 (9) Unknown

93. Location of Steering Rim/Spoke Deformation

05

(00) No steering rim deformation

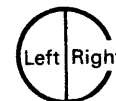
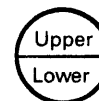
Quarter Sections

- (01) Section A
 (02) Section B
 (03) Section C
 (04) Section D



Half Sections

- (05) Upper half of rim/spoke
 (06) Lower half of rim/spoke
 (07) Left half of rim/spoke
 (08) Right half of rim/spoke



- (09) Complete steering wheel collapse
 (10) Undetermined location
 (99) Unknown

INSTRUMENT PANEL

94. Odometer Reading

0 0 5,000

5082.2 miles—Code mileage to the nearest 1,000 miles

- (000) No odometer
 (001) Less than 1,500 miles
 (300) 299,500 miles or more
 (999) Unknown

Source: _____

95. Instrument Panel Damage from Occupant Contact?

0

- (0) No TISSUE TRANSFERS ONLY
 (1) Yes
 (9) Unknown

96. Knee Bolsters Deformed from Occupant Contact?

0

- (0) No
 (1) Yes
 (8) Not present
 (9) Unknown

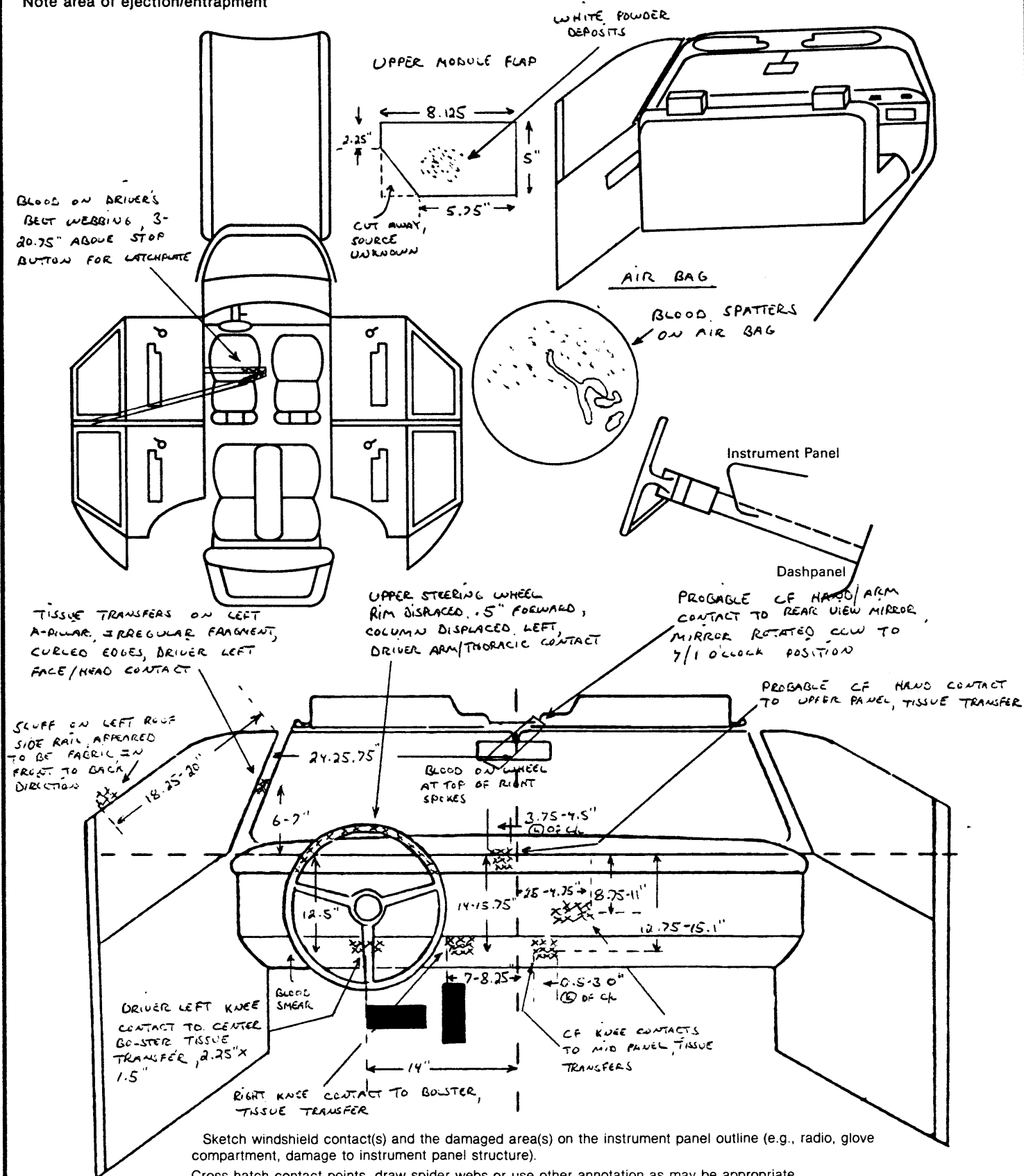
97. Did Glove Compartment Door Open During Collision(s)?

0

- (0) No
 (1) Yes
 (8) Not present
 (9) Unknown

VEHICLE INTERIOR SKETCHES

Note area of ejection/entrapment



POINTS OF OCCUPANT CONTACT

Contact	Interior Component Contacted	Occupant No. If Known	Body Region If Known	Supporting Physical Evidence	Confidence Level of Contact Point
A	04	1	TORO	0.5" OF RIM DEFORMATION	2
B	13	1	(L) KNEE	TISSUE TRANSFER	1
C	13	1	(R) KNEE	TISSUE TRANSFER	1
D	22	1	HEAD/FACE	TISSUE TRANSFER	1
E	10	2	KNEES/LEGS	TISSUE TRANSFER	1
F	10	2	HANDS/ARMS	TISSUE TRANSFER	1
G	45	1	BLOOD	BLOOD SPATTERS	1
H					
I					
J					
K					
L					
M					
N					

CODES FOR INTERIOR COMPONENTS

FRONT

- (01) Windshield
- (02) Mirror
- (03) Sunvisor
- (04) Steering wheel rim
- (05) Steering wheel hub/spoke
- (06) Steering wheel (combination of codes 04 and 05)
- (07) Steering column, transmission selector lever, other attachment
- (08) Add on equipment (e.g., CB, tape deck, air conditioner)
- (09) Left instrument panel and below
- (10) Center instrument panel and below
- (11) Right instrument panel and below
- (12) Glove compartment door
- (13) Knee bolster
- (14) Windshield including one or more of the following: front header, A-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (15) Windshield including one or more of the following: front header, A-pillar, instrument panel, or mirror (passenger side only)
- (16) Other front object (specify): _____

LEFT SIDE

- (20) Left side interior surface, excluding hardware or armrests
- (21) Left side hardware or armrest
- (22) Left A pillar
- (23) Left B pillar
- (24) Other left pillar (specify): _____
- (25) Left side window glass or frame

- (26) Left side window glass including one or more of the following: frame, window sill, A-pillar, B-pillar, or roof side rail
- (27) Other left side object (specify): _____

RIGHT SIDE

- (30) Right side interior surface, excluding hardware or armrests
- (31) Right side hardware or armrest
- (32) Right A pillar
- (33) Right B pillar
- (34) Other right pillar (specify): _____
- (35) Right side window glass or frame
- (36) Right side window glass including one or more of the following: frame, window sill, A-pillar, B-pillar, or roof side rail
- (37) Other right side object (specify): _____

INTERIOR

- (40) Seat, back support
- (41) Belt restraint webbing/buckle
- (42) Belt restraint B-pillar attachment point
- (43) Other restraint system component (specify): _____
- (44) Head restraint system
- (45) Air bag
- (46) Other occupants (specify): _____
- (47) Interior loose objects

- (48) Child safety seat (specify): _____

- (49) Other interior object (specify): _____

ROOF

- (50) Front header
- (51) Rear header
- (52) Roof left side rail
- (53) Roof right side rail
- (54) Roof or convertible top

FLOOR

- (56) Floor including toe pan
- (57) Floor or console mounted transmission lever, including console
- (58) Parking brake handle
- (59) Foot controls including parking brake

REAR

- (60) Backlight (rear window)
- (61) Backlight storage rack, door, etc.
- (62) Other rear object (specify): _____

CONFIDENCE LEVEL OF CONTACT POINT

- (1) Certain
- (2) Probable
- (3) Possible
- (4) Unknown

AUTOMATIC RESTRAINTS

NOTES: Encode the data for each applicable front seat position. The attributes for the variables may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

		Left	Center	Right
F I R S T	Availability	1	-	-
	Function	1	-	-
	Failure	1	-	-

AIR BAGS

Air Bag System Availability/Function

- (0) Not equipped/not available
- (1) Air bag

Non-functional

- (2) Air bag disconnected (specify):

- (3) Air bag not reinstalled
- (9) Unknown

Air Bag System Deployment

- (0) Not equipped/not available
- (1) Air bag deployed during accident
- (2) Air bag deployed inadvertently just prior to accident
- (3) Air bag deployed, accident sequence undetermined
- (4) Nondeployed
- (5) Unknown if deployed
- (9) Unknown

Did Air Bag System Fail?

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify):

- (9) Unknown

AUTOMATIC BELTS

Automatic (Passive) Belt System Availability/Function

- (0) Not equipped/not available
- (1) 2 point automatic belts
- (2) 3 point automatic belts
- (3) Automatic belts—type unknown

Non-functional

- (4) Automatic belts destroyed or rendered inoperative
- (9) Unknown

Automatic (Passive) Belt System Use

- (0) Not equipped/not available/destroyed or rendered inoperative
- (1) Automatic belt in use
- (2) Automatic belt not in use (manually disconnected, motorized track inoperative)
- (3) Automatic belt use unknown
- (9) Unknown

Automatic (Passive) Belt System Type

- (0) Not equipped/not available
- (1) Non-motorized system
- (2) Motorized system
- (9) Unknown

Proper Use of Automatic (Passive) Belt System

- (0) Not equipped/not available/not used
- (1) Automatic belt used properly
- (2) Automatic belt used properly with child safety seat

Automatic Belt Used Improperly

- (3) Automatic shoulder belt worn under arm
- (4) Automatic shoulder belt worn behind back
- (5) Automatic belt worn around more than one person
- (6) Lap portion of automatic belt worn on abdomen
- (7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify):

- (8) Other improper use of automatic belt system

(specify):

- (9) Unknown

Automatic (Passive) Belt Failure Modes During Accident

- (0) Not equipped/not available/not in use
- (1) No automatic belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):

- (6) Broken retractor

- (7) Combination of above (specify):

- (8) Other automatic belt failure (specify):

- (9) Unknown

MANUAL RESTRAINTS

NOTES: Encode the applicable data for each seat position in the vehicle. The attributes for the variables may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

If a child safety seat is present, encode the data on the back of this page.

If the vehicle has automatic restraints available, encode the appropriate data on the back of the previous page.

		Left	Center	Right
FIRST	Availability	4	3	4
	Use	04	03	04
	Failure Modes	1	1	1
SECOND	Availability	4	3	4
	Use	04	00	04
	Failure Modes	1	0	1
THIRD	Availability			
	Use			
	Failure Modes			
OTHER	Availability			
	Use			
	Failure Modes			

Manual (Active) Belt System Availability

- (0) Not available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available – type unknown
- (8) Other belt (specify):

(9) Unknown

Manual (Active) Belt System Use

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperative (specify):

- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used – type unknown

(08) Other belt used (specify):

- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat – type unknown
- (18) Other belt used with child safety seat (specify):

(99) Unknown if belt used

Manual (Active) Belt Failure Modes During Accident

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):

- (6) Broken retractor
- (7) Combination of above (specify):

(8) Other manual belt failure (specify):

(9) Unknown

CHILD SAFETY SEAT FIELD ASSESSMENT

When a child safety seat is present enter the occupant's number in the first row and complete the column below the occupant's number using the codes listed below. Complete a column for each child safety seat present.

Occupant Number						
1. Type of Child Safety Seat						
2. Child Safety Seat Orientation						
3. Child Safety Seat Harness Usage						
4. Child Safety Seat Shield Usage						
5. Child Safety Seat Tether Usage						
6. Child Safety Seat Make/Model	Specify Below for Each Child Safety Seat					

1. Type of Child Safety Seat

- (0) No child safety seat
 (1) Infant seat
 (2) Toddler seat
 (3) Convertible seat
 (4) Booster seat
 (7) Other type child safety seat (specify):

- (8) Unknown child safety seat type
 (9) Unknown if child safety seat used

2. Child Safety Seat Orientation

- (00) No child safety seat
 Designed for Rear Facing for This Age/Weight
 (01) Rear facing
 (02) Forward facing
 (03) Other orientation (specify):

- (04) Unknown orientation
 Designed for Forward Facing for This Age/Weight
 (11) Rear facing
 (12) Forward facing
 (18) Other orientation (specify):

- (19) Unknown orientation
 Unknown Design or Orientation for This Age/Weight, or Unknown Age/Weight
 (21) Rear facing
 (22) Forward facing
 (28) Other orientation (specify):

(29) Unknown orientation

(99) Unknown if child safety seat used

3. Child Safety Seat Harness Usage**4. Child Safety Seat Shield Usage****5. Child Safety Seat Tether Usage**

Note: Options Below Are Used for Variables 3-5.

(00) No child safety seat

Not Designed with Harness/Shield/Tether

- (01) After market harness/shield/tether added, not used
 (02) After market harness/shield/tether used
 (03) Child safety seat used, but no after market harness/shield/tether added
 (09) Unknown if harness/shield/tether added or used

Designed with Harness/Shield/Tether

- (11) Harness/shield/tether not used
 (12) Harness/shield/tether used
 (19) Unknown if harness/shield/tether used

Unknown if Designed with Harness/Shield/Tether

- (21) Harness/shield/tether not used
 (22) Harness/shield/tether used
 (29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

6. Child Safety Seat Make/Model

(Specify make/model and occupant number)

HEAD RESTRAINTS/SEAT EVALUATION

NOTES: Encode the applicable data for **each seat position** in the vehicle. The attributes for these variables may be found at the bottom of the page. Head restraint type/damage and seat type/performance should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

		Left	Center	Right
FIRST	Head Restraint Type/Damage	3	0	3
	Seat Type	06	06	06
	Seat Performance	1	1	1
SECOND	Head Restraint Type/Damage	0	0	0
	Seat Type	03	03	03
	Seat Performance	1	1	1
THIRD	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
OTHER	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			

Head Restraint Type/Damage by Occupant at This Occupant Position

- (0) No head restraints
- (1) Integral – no damage
- (2) Integral – damaged during accident
- (3) Adjustable – no damage
- (4) Adjustable – damaged during accident
- (5) Add-on – no damage
- (6) Add-on – damaged during accident
- (8) Other (specify): _____
- (9) Unknown

Seat Type (This Occupant Position)

- (00) No seat
- (01) Bucket
- (02) Bucket with folding back
- (03) Bench
- (04) Bench with separate back cushions
- (05) Bench with folding back(s)
- (06) Split bench with separate back cushions
- (07) Split bench with folding back(s)
- (08) Pedestal (i.e., van type)
- (09) Other seat type (specify): _____
- (99) Unknown

Seat Performance (This Occupant Position)

- (0) No seat
- (1) No seat performance failure(s)
- (2) Seat adjusters failed
- (3) Seat back folding locks failed
- (4) Seat tracks/anchors failed
- (5) Deformed by impact of occupant
- (6) Deformed by passenger compartment intrusion (specify): _____

- (7) Combination of above (specify): _____
- (8) Other (specify): _____
- (9) Unknown

DESCRIBE ANY INDICATION OF ABNORMAL OCCUPANT POSTURE (I.E. UNUSUAL OCCUPANT CONTACT PATTERN)

EJECTION/ENTRAPMENT DATA

Complete the following if the researcher has any indications that an occupant was either ejected from or entrapped in the vehicle. Code the appropriate data on the Occupant Assessment Form.

EJECTION No [☒] Yes [☐]

Describe indications of ejection and body parts involved in partial ejection(s):

Occupant Number						
Ejection						
(Note on Vehicle Interior Sketch) Ejection Area						
Ejection Medium						
Medium Status						

Ejection

- (1) Complete ejection
- (2) Partial ejection
- (3) Ejection, unknown degree
- (9) Unknown

Ejection Area

- (1) Windshield
- (2) Left front
- (3) Right front
- (4) Left rear
- (5) Right rear
- (6) Rear

(7) Roof

(8) Other area (e.g., back of pickup, etc.) (specify):

(9) Unknown

Ejection Medium

- (1) Door hatch/tailgate
- (2) Nonfixed roof structure
- (3) Fixed glazing
- (4) Nonfixed glazing (specify):

(5) Integral structure

(8) Other medium (specify):

(9) Unknown

Medium Status (Immediately Prior to Impact)

- (1) Open
- (2) Closed
- (3) Integral structure
- (9) Unknown

ENTRAPMENT No [☒] Yes [☐]

Describe entrapment mechanism: _____

Component(s): _____

(Note in vehicle interior diagram)

APPENDIX D

NASS Occupant Forms



U.S. Department of Transportation
National Highway Traffic Safety
Administration

OCCUPANT ASSESSMENT FORM

Form Approved
O.M.B. No. 2127-0021

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. ~~Primary Sampling Unit Number~~ _____

2. Case Number - Stratum 91-08

3. Vehicle Number 01

4. Occupant Number 01

OCCUPANT'S CHARACTERISTICS

5. Occupant's Age 35

Code actual age at time of accident.

(00) Less than one year old (specify by month):

(97) 97 years and older

(99) Unknown

6. Occupant's Sex 2

(1) Male

(2) Female

(9) Unknown

7. Occupant's Height 62

Code actual height to the nearest inch.

(99) Unknown

8. Occupant's Weight 115

Code actual weight to the nearest pounds.

(999) Unknown

9. Occupant's Role 1

(1) Driver

(2) Passenger

(9) Unknown

10. Occupant's Seat Position 11

Front Seat

(11) Left side

(12) Middle

(13) Right side

(14) Other (specify):

(15) On or in the lap of another occupant

Second Seat

(21) Left side

(22) Middle

(23) Right side

(24) Other (specify):

(25) On or in the lap of another occupant

Third Seat

(31) Left side

(32) Middle

(33) Right side

(34) Other (specify):

(35) On or in the lap of another occupant

Fourth Seat

(41) Left side

(42) Middle

(43) Right side

(44) Other (specify):

(45) On or in the lap of another occupant

(97) In or on unenclosed area

(98) Other seat (specify):

(99) Unknown

11. Occupant Posture 0

(0) Normal posture

(1) Abnormal posture (specify):

(9) Unknown

EJECTION/ENTRAPMENT

12. Ejection 0

(0) No ejection

(1) Complete ejection

(2) Partial ejection

(3) Ejection, unknown degree

(9) Unknown

13. Ejection Area 0

(0) No ejection

(1) Windshield

(2) Left front

(3) Right front

(4) Left rear

(5) Right rear

(6) Rear

(7) Roof

(8) Other area (e.g., back of pickup, etc.)
(specify):

(9) Unknown

14. Ejection Medium 0

(0) No ejection

(1) Door/hatch/tailgate

(2) Nonfixed roof structure

(3) Fixed glazing

(4) Nonfixed glazing (specify):

(5) Integral structure

(8) Other medium (specify):

(9) Unknown

15. Medium Status (Immediately Prior To Impact) 0

(0) No ejection

(1) Open

(2) Closed

(3) Integral structure

(9) Unknown

16. Entrapment 0

(NOTE: Entrapped means that part of the person was in the vehicle and mechanically restrained; jammed doors and immobilizing injuries by themselves are not sufficient to constitute entrapment.)

(0) Not entrapped

(1) Entrapped

(9) Unknown

RESTRAINT SYSTEM AND SEAT EVALUATION**17. Manual (Active) Belt System Availability**4

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available—type unknown

Integral Belt Partially Destroyed

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)

(8) Other belt (specify): _____

(9) Unknown

18. Manual (Active) Belt System Use04

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperative (specify): _____

- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt *IMPROPER USAGE*
- (05) Belt used—type unknown
- (08) Other belt used (specify): _____

- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat—type unknown
- (18) Other belt used with child safety seat (specify): _____
- (99) Unknown if belt used

19. Proper Use of Manual (Active) Belts3

- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

Belt Used Improperly

- (3) Shoulder belt worn under arm
- (4) Shoulder belt worn behind back or seat
- (5) Belt worn around more than one person
- (6) Lap belt worn on abdomen
- (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify): _____

(8) Other improper use of manual belt system (specify): _____

(9) Unknown

20. Manual (Active) Belt Failure Modes During Accident1

- (0) No manual belt used
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): _____

- (6) Broken retractor
- (7) Combination of above (specify): _____

(8) Other manual belt failure (specify): _____

(9) Unknown

21. Air Bag System Availability/Function1

- (0) Not equipped/not available
- (1) Air bag

Non-functional

(2) Air bag disconnected (specify): _____

(3) Air bag not reinstalled

(9) Unknown

22. Air Bag System Deployment1

- (0) Not equipped/not available
- (1) Air bag deployed during accident (as a result of impact)
- (2) Air bag deployed inadvertently just prior to accident
- (3) Air bag deployed, accident sequence undetermined
- (4) Nondeployed
- (5) Unknown if deployed
- (6) Air bag deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
- (9) Unknown

23. Did Air Bag System Fail?1

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify): _____

(9) Unknown

Note: See Variables 44 through 48 (Page 5) for Information on Automatic Belts

24. Police Reported Restraint Use2

- (0) None used
- (1) Police did not indicate restraint use
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt used, type not specified
- (6) Child safety seat
- (7) Other or automatic restraint (specify): _____

(8) Restrained, type unknown

(9) Police indicated "unknown"

25. Head Restraint Type/Damage by Occupant at This Occupant Position3

- (0) No head restraints
- (1) Integral—no damage
- (2) Integral—damaged during accident
- (3) Adjustable—no damage
- (4) Adjustable—damaged during accident
- (5) Add-on—no damage
- (6) Add-on—damaged during accident
- (8) Other (specify): _____

(9) Unknown

National Accident Sampling System-Crashworthiness Data System: Occupant Assessment Form

Page 3

26. Seat Type (this Occupant Position) 06
- (00) Occupant not seated or no seat
 (01) Bucket
 (02) Bucket with folding back
 (03) Bench
 (04) Bench with separate back cushions
 (05) Bench with folding back(s)
 (06) Split bench with separate back cushions
 (07) Split bench with folding back(s)
 (08) Pedestal (i.e., column supported)
 (09) Other seat type (specify): _____
 (10) Box mounted seat (i.e., van type)
 (99) Unknown

27. Seat Performance (this Occupant Position) 1
- (0) Occupant not seated or no seat
 (1) No seat performance failure(s)
 (2) Seat adjusters failed
 (3) Seat back folding locks or "seat back" failed
 (4) Seat track/anchors failed
 (5) Deformed by impact of occupant
 (6) Deformed by passenger compartment intrusion (specify): _____

 (7) Combination of above (specify): _____
 (8) Other (specify): _____
 (9) Unknown

CHILD SAFETY SEAT

28. Child Safety Seat Make/Model 000
- (000) No child safety seat
 Applicable codes are found in your NASS CDS Data Collection, Coding and Editing
 (950) Built-in child safety seat
 (997) Other make/model (specify): _____
 (998) Unknown make/model
 (999) Unknown if child safety seat used
29. Type of Child Safety Seat 0
- (0) No child safety seat
 (1) Infant seat
 (2) Toddler seat
 (3) Convertible seat
 (4) Booster seat
 (7) Other type child safety seat (specify): _____
 (8) Unknown child safety seat type
 (9) Unknown if child safety seat used

30. Child Safety Seat Orientation 00
- (00) No child safety seat
- Designed for Rear Facing for This Age/Weight*
 (01) Rear facing
 (02) Forward facing
 (08) Other orientation (specify): _____
 (09) Unknown orientation
- Designed For Forward Facing for This Age/Weight*
 (11) Rear facing
 (12) Forward facing
 (18) Other orientation (specify): _____
 (19) Unknown orientation
- Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight*
 (21) Rear facing
 (22) Forward facing
 (28) Other orientation (specify): _____
 (29) Unknown orientation
- (99) Unknown if child safety seat used

31. Child Safety Seat Harness Usage 00
32. Child Safety Seat Shield Usage 00
33. Child Safety Seat Tether Usage 00
- Note: Options below applicable to Variables OA31-OA33.
 (00) No child safety seat

- Not Designed With Harness/Shield/Tether*
 (01) After market harness/shield/tether added, not used
 (02) After market harness/shield/tether used
 (03) Child safety seat used, but no after market harness/shield/tether added
 (09) Unknown if harness/shield/tether added or used

- Designed With Harness/Shield/Tether*
 (11) Harness/shield/tether not used
 (12) Harness/shield/tether used
 (19) Unknown if harness/shield/tether used

- Unknown If Designed With Harness/Shield/Tether*
 (21) Harness/shield/tether not used
 (22) Harness/shield/tether used
 (29) Unknown if harness/shield/tether used
- (99) Unknown if child safety seat used

National Accident Sampling System-Crashworthiness Data System: Occupant Assessment Form

Page 4

INJURY CONSEQUENCES34. Injury Severity (Police Rating) 4

- (0) O - No injury
- (1) C - Possible injury
- (2) B - Nonincapacitating injury
- (3) A - Incapacitating injury
- (4) K - Killed
- (5) U - Injury, severity unknown
- (6) Died prior to accident
- (9) Unknown

35. Treatment - Mortality 1

- (0) No treatment
- (1) Fatal
- (2) Fatal - ruled disease

Nonfatal

- (3) Hospitalization
- (4) Transported and released
- (5) Treatment at scene - nontransported
- (6) Treatment later
- (8) Treatment - other (specify):

(9) Unknown

36. Type Of Medical Facility (for Initial Treatment) 2

- (0) Not treated at a medical facility
- (1) Trauma center
- (2) Hospital
- (3) Medical clinic
- (4) Physician's office
- (5) Treatment later at medical facility
- (8) Other (specify):

(9) Unknown

37. Hospital Stay 00

- (00) Not Hospitalized

Code the number of days (up through 60) that the occupant stayed in hospital.

- (61) 61 days or more
- (99) Unknown

38. Working Days Lost 62

- Code the number of days (up through 60) that the occupant lost from work due to the accident
- (00) No working days lost
 - (61) 61 days or more
 - (62) Fatally injured
 - (97) Not working prior to accident
 - (99) Unknown

39. Time to Death 13

- Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 + n up through 30 days = 60)
- (00) Not fatal
 - (96) Fatal - ruled disease
 - (99) Unknown

40. 1st Medically Reported Cause of Death 0341. 2nd Medically Reported Cause of Death 0242. 3rd Medically Reported Cause of Death 01

- Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death
- (00) Not fatal or no additional causes
 - (97) Other result (specify):

(99) Unknown

43. Number of Recorded Injuries for This Occupant 08

- Code the actual number of injuries recorded for this occupant.
- (00) No recorded injuries
 - (97) Injured, details unknown
 - (99) Unknown if injured



OCCUPANT INJURY FORM

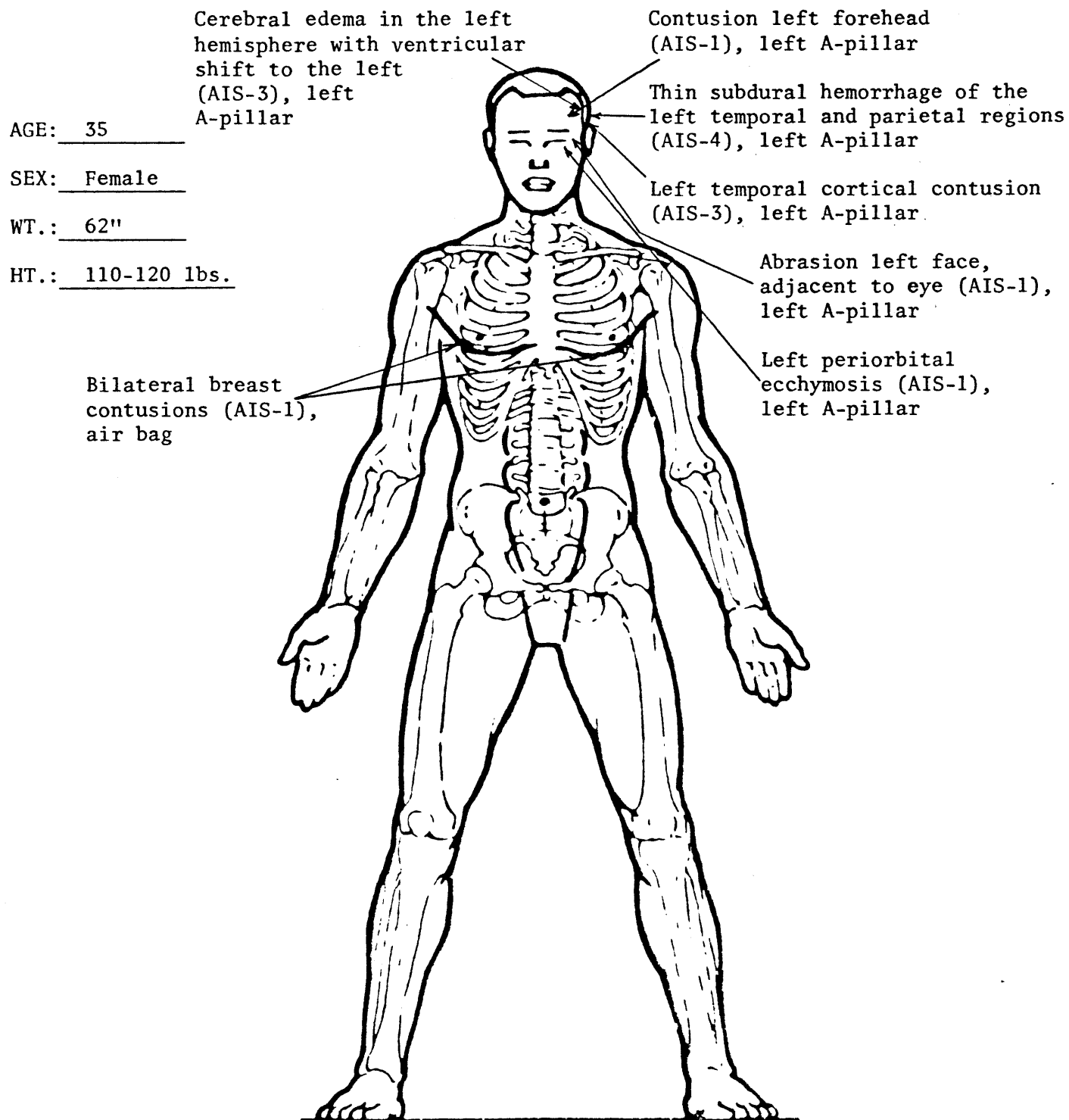
NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number	3. Vehicle Number
2. Case Number - Stratum <u>91-08</u>	4. Occupant Number <u>01</u>

INJURY DATA

Record below the actual injuries sustained by this occupant that were identified from the official and unofficial data sources. Remember not to double count an injury just because it was identified from two different sources. If greater than ten injuries have been documented, encode the balance on the Occupant Injury Supplement.

Source of Injury Data	O.I.C.-A.I.S					Injury Source	Injury Source Confidence Level	Direct/Indirect Injury	Occupant Area Intrusion No.	
	Body Region	Aspect	Lesion	System Organ	A.I.S. Severity					
1st	5. <u>2</u>	6. <u>H</u>	7. <u>L</u>	8. <u>U</u>	9. <u>B</u>	10. <u>4</u>	11. <u>22</u>	12. <u>1</u>	13. <u>1</u>	14. <u>00</u>
2nd	15. <u>2</u>	16. <u>H</u>	17. <u>L</u>	18. <u>C</u>	19. <u>B</u>	20. <u>3</u>	21. <u>22</u>	22. <u>1</u>	23. <u>1</u>	24. <u>00</u>
3rd	25. <u>2</u>	26. <u>H</u>	27. <u>L</u>	28. <u>U</u>	29. <u>B</u>	30. <u>3</u>	31. <u>22</u>	32. <u>1</u>	33. <u>1</u>	34. <u>00</u>
4th	35. <u>2</u>	36. <u>F</u>	37. <u>S</u>	38. <u>C</u>	39. <u>I</u>	40. <u>1</u>	41. <u>22</u>	42. <u>1</u>	43. <u>1</u>	44. <u>00</u>
5th	45. <u>2</u>	46. <u>F</u>	47. <u>L</u>	48. <u>A</u>	49. <u>I</u>	50. <u>1</u>	51. <u>22</u>	52. <u>1</u>	53. <u>1</u>	54. <u>00</u>
6th	55. <u>2</u>	56. <u>F</u>	57. <u>L</u>	58. <u>C</u>	59. <u>O</u>	60. <u>1</u>	61. <u>22</u>	62. <u>1</u>	63. <u>1</u>	64. <u>00</u>
7th	65. <u>2</u>	66. <u>C</u>	67. <u>L</u>	68. <u>C</u>	69. <u>I</u>	70. <u>1</u>	71. <u>45</u>	72. <u>1</u>	73. <u>1</u>	74. <u>00</u>
8th	75. <u>2</u>	76. <u>C</u>	77. <u>R</u>	78. <u>C</u>	79. <u>I</u>	80. <u>1</u>	81. <u>45</u>	82. <u>1</u>	83. <u>1</u>	84. <u>00</u>
9th	85. <u> </u>	86. <u> </u>	87. <u> </u>	88. <u> </u>	89. <u> </u>	90. <u> </u>	91. <u> </u>	92. <u> </u>	93. <u> </u>	94. <u> </u>
10th	95. <u> </u>	96. <u> </u>	97. <u> </u>	98. <u> </u>	99. <u> </u>	100. <u> </u>	101. <u> </u>	102. <u> </u>	103. <u> </u>	104. <u> </u>



SOURCE OF INJURY DATA**OFFICIAL**

- (1) Autopsy records with or without hospital medical records
- (2) Hospital medical records other than emergency room (e.g., discharge summary)
- (3) Emergency room records only (including associated X-rays or other lab reports)
- (4) Private physician, walk-in or emergency clinic

UNOFFICIAL

- (5) Lay coroner report
- (6) E.M.S. personnel
- (7) Interviewee
- (8) Other source (specify): _____
- (9) Police

INJURY SOURCE**FRONT**

- (01) Windshield
- (02) Mirror
- (03) Sunvisor
- (04) Steering wheel rim
- (05) Steering wheel hub/spoke
- (06) Steering wheel (combination of codes 04 and 05)
- (07) Steering column, transmission selector lever, other attachment
- (08) Add on equipment (e.g., CB, tape deck, air conditioner)
- (09) Left instrument panel and below
- (10) Center instrument panel and below
- (11) Right instrument panel and below
- (12) Glove compartment door
- (13) Knee bolster
- (14) Windshield including one or more of the following: front header, A-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (15) Windshield including one or more of the following: front header, A-pillar, instrument panel, or mirror (passenger side only)
- (16) Other front object (specify): _____

LEFT SIDE

- (20) Left side interior surface, excluding hardware or armrests
- (21) Left side hardware or armrest
- (22) Left A pillar
- (23) Left B pillar
- (24) Other left pillar (specify): _____
- (25) Left side window glass or frame

- (26) Left side window glass including one or more of the following: frame, window sill, A-pillar, B-pillar, or roof side rail.
- (27) Other left side object (specify): _____

- (28) Left side window sill

RIGHT SIDE

- (30) Right side interior surface, excluding hardware or armrests
- (31) Right side hardware or armrest
- (32) Right A pillar
- (33) Right B pillar
- (34) Other right pillar (specify): _____
- (35) Right side window glass or frame
- (36) Right side window glass including one or more of the following: frame, window sill, A pillar, B pillar, or roof side rail.
- (37) Other right side object (specify): _____

- (38) Right side window sill

INTERIOR

- (40) Seat, back support
- (41) Belt restraint webbing/buckle
- (42) Belt restraint B-pillar attachment point
- (43) Other restraint system component (specify): _____
- (44) Head restraint system
- (45) Air bag
- (46) Other occupants (specify): _____
- (47) Interior loose objects
- (48) Child safety seat (specify): _____
- (49) Other interior object (specify): _____

ROOF

- (50) Front header
- (51) Rear header
- (52) Roof left side rail
- (53) Roof right side rail
- (54) Roof or convertible top

FLOOR

- (56) Floor (including toe pan)
- (57) Floor or console mounted transmission lever, including console
- (58) Parking brake handle
- (59) Foot controls including parking brake

REAR

- (60) Backlight (rear window)

- (61) Backlight storage rack, door, etc.
- (62) Other rear object (specify): _____

EXTERIOR OF OCCUPANT'S VEHICLE

- (65) Hood
- (66) Outside hardware (e.g., outside mirror, antenna)
- (67) Other exterior surface or tires (specify): _____
- (68) Unknown exterior objects

EXTERIOR OF OTHER MOTOR VEHICLE

- (70) Front bumper
- (71) Hood edge
- (72) Other front of vehicle (specify): _____
- (73) Hood
- (74) Hood ornament
- (75) Windshield, roof rail, A-pillar
- (76) Side surface
- (77) Side mirrors
- (78) Other side protrusions (specify): _____

- (79) Rear surface
- (80) Undercarriage
- (81) Tires and wheels
- (82) Other exterior of other motor vehicle (specify): _____

- (83) Unknown exterior of other motor vehicle

OTHER VEHICLE OR OBJECT IN THE ENVIRONMENT

- (84) Ground
- (85) Other vehicle or object (specify): _____
- (86) Unknown vehicle or object

NONCONTACT INJURY

- (90) Fire in vehicle
- (91) Flying glass
- (92) Other noncontact injury source (specify): _____
- (93) Air bag exhaust gases
- (97) Injured, unknown source

INJURY SOURCE CONFIDENCE LEVEL

- (1) Certain
- (2) Probable
- (3) Possible
- (9) Unknown

DIRECT/INDIRECT INJURY

- (1) Direct contact injury
- (2) Indirect contact injury
- (3) Noncontact injury
- (7) Injured, unknown source

OCCUPANT INJURY CLASSIFICATION**O.I.C. Body Region**

- (M) Abdomen
- (Q) Ankle—foot
- (A) Arm (upper)
- (B) Back-thoracolumbar spine
- (C) Chest
- (E) Elbow
- (F) Face
- (R) Forearm
- (H) Head—skull
- (U) Injured, unknown region
- (K) Knee
- (L) Leg (lower)
- (Y) Lower limb(s) (whole or unknown part)
- (N) Neck—cervical spine
- (P) Pelvic—hip
- (S) Shoulder
- (T) Thigh
- (X) Upper limb(s) (whole or unknown part)
- (O) Whole body
- (W) Wrist—hand

Aspect of Injury

- (A) Anterior—front
- (B) Bilateral (rib fracture only)
- (C) Central
- (I) Inferior—lower
- (U) Injured, unknown aspect
- (L) Left
- (P) Posterior—back
- (R) Right
- (S) Superior—upper
- (W) Whole region

Lesion

- (A) Abrasion
- (M) Amputation
- (V) Avulsion
- (B) Burn
- (K) Concussion
- (C) Contusion
- (N) Crush
- (G) Detachment, separation
- (D) Dislocation

- (F) Fracture
- (Z) Fracture and dislocation
- (U) Injured, unknown lesion
- (L) Laceration
- (O) Other
- (P) Perforation, puncture
- (R) Rupture
- (S) Sprain
- (T) Strain
- (E) Total severance, transection

System/Organ

- (W) All systems in region
- (A) Arteries—veins
- (B) Brain
- (D) Digestive
- (E) Ears
- (O) Eye
- (H) Heart
- (U) Injured, unknown system
- (I) Integumentary
- (J) Joints
- (K) Kidneys

- (L) Liver
- (M) Muscles
- (N) Nervous system
- (P) Pulmonary—lungs
- (R) Respiratory
- (S) Skeletal
- (C) Spinal cord
- (Q) Spleen
- (T) Thyroid, other endocrine gland
- (V) Vertebrae

Abbreviated Injury Scale

- (1) Minor injury
- (2) Moderate injury
- (3) Serious injury
- (4) Severe injury
- (5) Critical injury
- (6) Maximum (untreatable)
- (7) Injured, unknown severity